Pioneer sound.vision.soul

# Service Manual

ORDER NO.
**RRV3032**

## AUDIO/VIDEO MULTI-CHANNEL RECEIVER

# VSX-AX5Ai-G

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Model | Type | Power Requirement | The voltage can be converted by the following method. |
|---|---|---|---|
| VSX-AX5Ai-G | DLXJ | AC110V/120-127V/220V/230-240V | With the voltage selector |
| VSX-AX5Ai-G | SFXJ | AC110V/120-127V/220V/230-240V | With the voltage selector |

## ● This service manual should be used together with the following manual(s):

| Model | Order No. | Remarks |
|---|---|---|
| VSX-AX5Ai-S/HYXJ | RRV3018 | |

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
**PIONEER ELECTRONICS (USA) INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936
**©PIONEER CORPORATION 2004**

T – ZZV SEPT. 2004 Printed in Japan

# 1. CONTRAST OF MISCELLANEOUS PARTS

*NOTES:*
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *Reference Nos. indicate the pages and Nos. in the service manual for the base model.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).*

*560 Ω → 56 × 10¹ → 561 ..... RD1/4PU 5 6 1 J*
*47k Ω → 47 × 10³ → 473 ..... RD1/4PU 4 7 3 J*
*0.5 Ω → R50 ..... RN2H R 5 0 K*
*1 Ω → 1R0 ..... RS1P 1 R 0 K*

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62k Ω → 562 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F*

## ■ CONTRAST TABLE

VSX-AX5Ai-G/DLXJ, /SFXJ and VSX-AX5Ai-S/HYXJ are constructed the same except for the following :

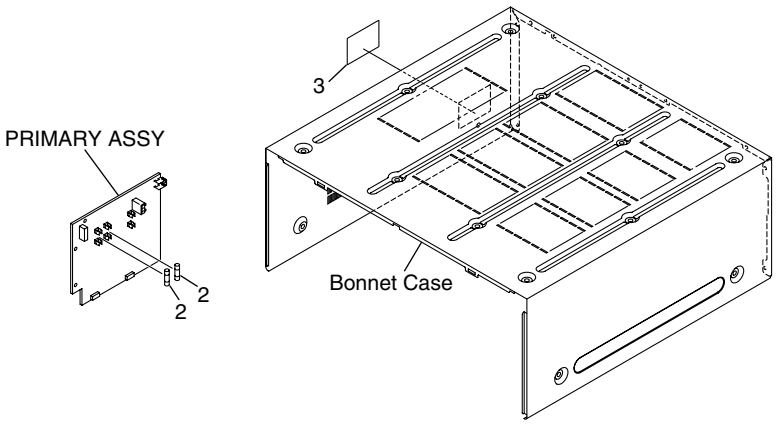
| Ref. No. | Mark | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|---|
| | | | VSX-AX5Ai-S HYXJ | VSX-AX5Ai-G DLXJ | VSX-AX5Ai-G SFXJ | |
| | | **PCB ASSEMBLIES** | | | | |
| | NSP | 1..MAIN ASSY | AWK7836 | AWK7839 | AWK7838 | |
| P15- 2 | | 2..MAIN CONTROL ASSY | AWX8435 | AWX8438 | AWX8437 | |
| | NSP | 1..VIDEO CONVERT ASSY | AWK7842 | AWK7842 | AWK7841 | |
| P15- 4 | | 2..VIDEO CONVERT ASSY | AWX8451 | AWX8451 | AWX8450 | |
| | NSP | 1..REGULATOR ASSY | AWK7846 | AWK7848 | AWK7848 | |
| P13- 5 | | 2..PRIMARY ASSY | AWX8461 | AWX8463 | AWX8463 | |
| P13- 8 | | 2..TRANS 1 ASSY | AWX8464 | Not used | Not used | |
| | | 2..VOL-SEL ASSY | Not used | AWX8471 | AWX8471 | No.1 |
| | NSP | J21 BOARD IN JUMPER WIRED | Not used | DB120NB2 | DB120NB2 | |
| | NSP | J22 BOARD IN JUMPER WIRED | Not used | DB920NB2 | DB920NB2 | |
| | NSP | J23 BOARD IN JUMPER WIRED | Not used | DB020NB2 | DB020NB2 | |
| | | Y14 AWG18 BOARD IN | ADX7419 | Not used | Not used | |
| | | Y15 AWG18 BOARD IN | ADX7418 | Not used | Not used | |
| P15-12 | | FM/AM TUNER UNIT | AXX7170 | AXX7173 | AXX7173 | |
| | | **PACKING SECTION** | | | | |
| | ⚠ | Power Cord | Not used | Not used | ADG7082 | Accessories |
| | | J Shape Plug | Not used | AKX7008 | AKX7008 | Accessories |
| | ⚠ | AC Plug Adapter | Not used | AKX7011 | AKX7011 | Accessories |
| P9- 6 | | Remote Control Unit | AXD7364 | AXD7326 | AXD7326 | |
| P9- 7 | | Battery Cover | AZN7940 | AZN7896 | AZN7896 | |
| P9-10 | | Operating Instructions (French) | ARC7541 | Not used | Not used | |
| P9-11 | | Operating Instructions (German) | ARC7542 | Not used | Not used | |
| P9-12 | | Operating Instructions (Italian) | ARC7543 | Not used | Not used | |
| P9-14 | | Operating Instructions (Dutch) | ARC7545 | Not used | Not used | |
| | | Operating Instructions (Chinese) | Not used | ARC7546 | ARC7546 | |
| | | Sub Instructions (English/Spanish/Chinese) | Not used | ARH7071 | ARH7071 | |
| P9-16 | NSP | Warranty Card | ARY7065 | Not used | Not used | |
| | | Caution Card SD SB | Not used | ARM7063 | ARM7063 | |
| | | Caution Card SB | Not used | Not used | ARM7064 | |
| | | Caution Card PAL | Not used | ARM7081 | Not used | |
| | | Caution Card NTSC | Not used | Not used | ARM7082 | |
| | | Caution Card 220V | Not used | ARR7019 | ARR7019 | |

| Ref. No. | Mark | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|---|
| | | | VSX-AX5Ai-S HYXJ | VSX-AX5Ai-G DLXJ | VSX-AX5Ai-G SFXJ | |
| | | **PACKING SECTION** (Continued) | | | | |
| P9-21 | | Packing Case | AHD8273 | AHD8275 | AHD8275 | |
| | | **EXTERIOR SECTION** | | | | |
| P11- 1 | | Bonnet Case | AZN7993 | AZN7994 | AZN7994 | |
| P11-13 | | Bonnet Sheet | AEB7329 | Not used | Not used | |
| | | **CHASSIS SECTION** | | | | |
| P13-14 | ⚠ | Power Transformer (AC220-230V) | ATS7381 | Not used | Not used | |
| P13-14 | ⚠ | Power Transformer (AC110V/120-127V/220-230V/240V) | Not used | ATS7382 | ATS7382 | |
| P13-16 | ⚠ | FU1 Fuse (T4A) | REK-106 | Not used | Not used | |
| P13-16 | ⚠ | FU1 Fuse (T10A) | Not used | DEK1045 | DEK1045 | |
| | ⚠ | FU2, FU3 Fuse (T5A) | Not used | REK-107 | REK-107 | No.2 |
| P13-38 | | UL Tube | ADN7007 | Not used | Not used | |
| P13-38 | | Glass Tube | Not used | ADN7009 | ADN7009 | |
| P13-53 | NSP | Fuse Card | AAX7099 | AAX7970 | AAX7970 | |
| | | Label (TAIWAN) | Not used | Not used | ARW7196 | No.3 |
| | NSP | SISIR Label | Not used | AAX8038 | Not used | |
| | NSP | RPCS Lable | Not used | Not used | AAX7966 | |
| | | **REAR PANEL SECTION** | | | | |
| P15-23 | | Rear Panel | ANC8280 | ANC8282 | ANC8287 | |
| | ⚠ | Voltage Selector | Not used | AKX-507 | AKX-507 | No.4 |
| | | **FRONT PANEL SECTION** | | | | |
| P19-15 | | Door Stay | AAH7097 | AAH7096 | AAH7096 | |
| P19-16 | | Door Hinge L | AMR7424 | AMR7422 | AMR7422 | |
| P19-17 | | Door Hinge R | AMR7425 | AMR7423 | AMR7423 | |
| P19-20 | | Door | ANB7280 | ANB7279 | ANB7279 | |
| P19-20 | | Rotary Knob L | AAA7017 | AAA7016 | AAA7016 | |
| P19-21 | | Window | AAK8234 | AAK8233 | AAK8233 | |
| P19-22 | | D. Sheet | AAK8239 | AAK8241 | AAK8241 | |
| P19-23 | | Cushion Circle | AED7087 | AED7086 | AED7086 | |
| P19-25 | | Panel Base | AMB7884 | AMB7885 | AMB7885 | |
| P19-28 | | F. Panel | ANB7349 | ANB7351 | ANB7351 | |
| P19-32 | | Pioneer Badge | VAM1124 | PAN1377 | PAN1377 | |
| P19-40 | | Power Button | AAD7734 | AAD7674 | AAD7674 | |
| | | **REMOTE CONTROL UNIT** | | | | |
| P174- 3 | | Case A | AZN7938 | AZN7906 | AZN7906 | |
| P174- 4 | | Case B | AZN7939 | AZN7892 | AZN7892 | |
| P174- 5 | | Frame | AZN7941 | AZN7908 | AZN7908 | |
| P174- 7 | | MIC Cap | AZN7942 | AZN7909 | AZN7909 | |

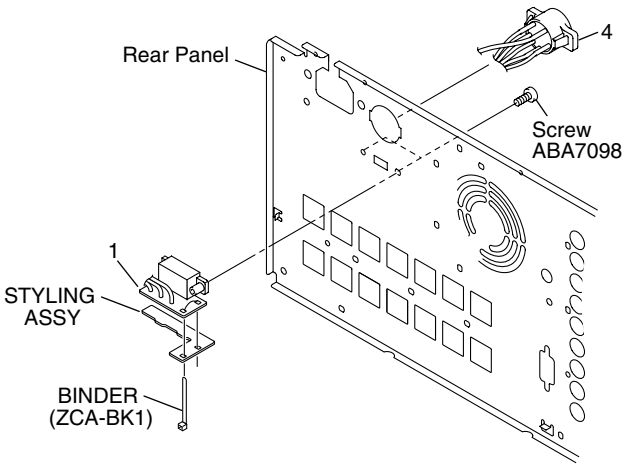
Notes : The numbers in the remarks column correspond to the numbers on the " EXPLODED VIEWS ".
For PCB ASSEMBLIES, Refer to "CONTRAST OF PCB ASSEMBLIES", "PCB PARTS LIST", "2. PCB CONNECTION DIAGRAM" and "3. SCHEMATIC DIAGRAM".

## ■ EXPLODED VIEWS

### ■ CHASSIS SECTION




### ■ REAR PANEL SECTION




## ■ CONTRAST OF PCB ASSEMBLIES

### JF MAIN CONTROL ASSY

AWX8438, AWX8437 and AWX8435 are constructed the same except for the following :

| Mark | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|
| | | AWX8435 | AWX8438 | AWX8437 | |
| | IC651 RDS DECODER IC | BU1924F | Not used | Not used | |
| | Q651 | 2SA1036K | Not used | Not used | |
| | Q652 | DTC143EUA | Not used | Not used | |
| | Q653 | 2SC4081 | Not used | Not used | |
| | L651 | LFCA2R2J | Not used | Not used | |
| | C103 - C112, C115, C116 | CCSRCH221J50 | Not used | Not used | |
| | C113, C114 | CCSRCH101J50 | Not used | Not used | |
| | C117, C118 | CCSRCH470J50 | Not used | Not used | |
| | C651, C652 | CCSRCH270J50 | Not used | Not used | |
| | C653 | CKSRYB102K50 | Not used | Not used | |
| | C654 | CEAT101M10 | Not used | Not used | |
| | C655 | CEAT2R2M50 | Not used | Not used | |
| | C656 | CKSRYB472K50 | Not used | Not used | |

| Mark | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|
| | | AWX8435 | AWX8438 | AWX8437 | |
| | C658 | CKSRYB561K50 | Not used | Not used | |
| | R123, R124 | RS1/16S102J | RS1/16S331J | RS1/16S331J | |
| | R523 | Not used | RS1/16S473J | RS1/16S473J | |
| | R524 | RS1/16S473J | Not used | RS1/16S473J | |
| | R525 | RS1/16S473J | RS1/16S473J | Not used | |
| | R526 | Not used | RS1/16S473J | RS1/16S473J | |
| | R652 | RS1/16S472J | Not used | Not used | |
| | R653 | RS1/16S473J | Not used | Not used | |
| | R654 | RS1/16S222J | Not used | Not used | |
| | R655 | RS1/16S221J | Not used | Not used | |
| | R657, R671, R672 | RS1/16S102J | Not used | Not used | |
| | X651 (4.332MHz) | ASS7004 | Not used | Not used | |

## AG F PRIMARY ASSY

AWX8463 and AWX8461 are constructed the same except for the following :

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | AWX8461 | AWX8463 | |
| ⚠ | T1 STANDBY TRANSFORMER | ATT7040 | ATT7041 | |
| | R2002 | RD1/2VM101J | Not used | |
| ⚠ | CN2005 1P AC OUTLET | AKP1034 | Not used | |
| | H2003–H2006 FUSE CLIP | Not used | AKR7001 | |
| | 2003 SCREW PLATE | Not used | VNE1948 | |
| NSP | J2001 BOARD IN JUMPER WIRED | Not used | DB846EB0 | |
| NSP | J2002 BOARD IN JUMPER WIRED | Not used | DB316EB0 | |
| NSP | J2003 BOARD IN JUMPER WIRED | Not used | DB146EB0 | |

## AH F VIDEO CONVERT ASSY

AWX8450 and AWX8451 are constructed the same except for the following :

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | AWX8451 | AWX8450 | |
| | IC3506 1H DELAY SYSTEM IC | TA8772AN | Not used | |
| | Q3508, Q3509 | 2SC4081 | Not used | |
| | Q3510, Q3511 | DTC124EUA | Not used | |
| | L3504 | LAU270J | LAU330J | |
| | L3508 | LAU100J | Not used | |
| | C3581, C3583-C3586, C3596, C3600 | CKSRYB104K16 | Not used | |
| | C3603, C3605, C3606 | CKSRYB104K16 | Not used | |
| | C3582, C3599, C3604, C3607 | CKSRYB103K50 | Not used | |
| | C3601, C3602 | CKSRYB474K16 | Not used | |
| | C3635-C3637 | CEVW1R0M501 | Not used | |
| | C3645 | CEVW470M16 | Not used | |
| | C3646 | CEVW100M16 | Not used | |
| | C3647 | CEVW101M16 | Not used | |
| | R3518 | RS1/16S102J | RS1/16S911J | |
| | R3555 | RS1/16S153J | Not used | |
| | R3567, R3568 | Not used | RS1/16S0R0J | |
| | R3575, R3576, R3583, R3584, R3593 | RS1/16S821J | Not used | |
| | R3582 | RS1/16S362J | Not used | |
| | R3585, R3586 | RS1/16S473J | Not used | |
| | R3588 | RS1/16S153J | Not used | |
| | R3594 | RS1/16S103J | Not used | |
| | X3501 | ASS1092 (4.433619MHz) | ASS1091 (3.579545MHz) | |

## ■ PCB PARTS LIST

| Mark | No. | Description | Part No. |
|---|---|---|---|

### AL F VOL-SEL ASSY

### SWITCHES AND RELAYS

| | | | |
|---|---|---|---|
| ⚠ | S2191 | VOLTAGE SELECTOR | AKX1033 |

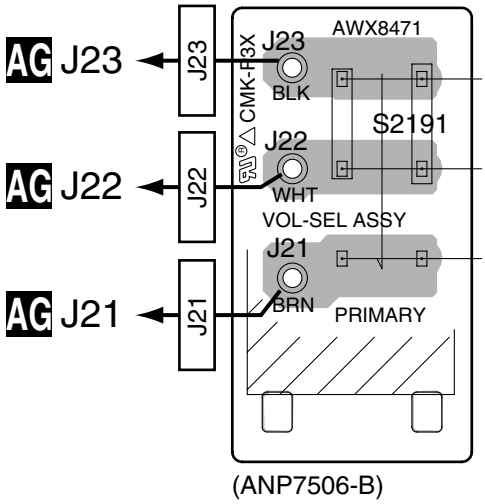
# 2. PCB CONNECTION DIAGRAM

## 2.1 VOL-SEL ASSY

**SIDE A**

**SIDE A**

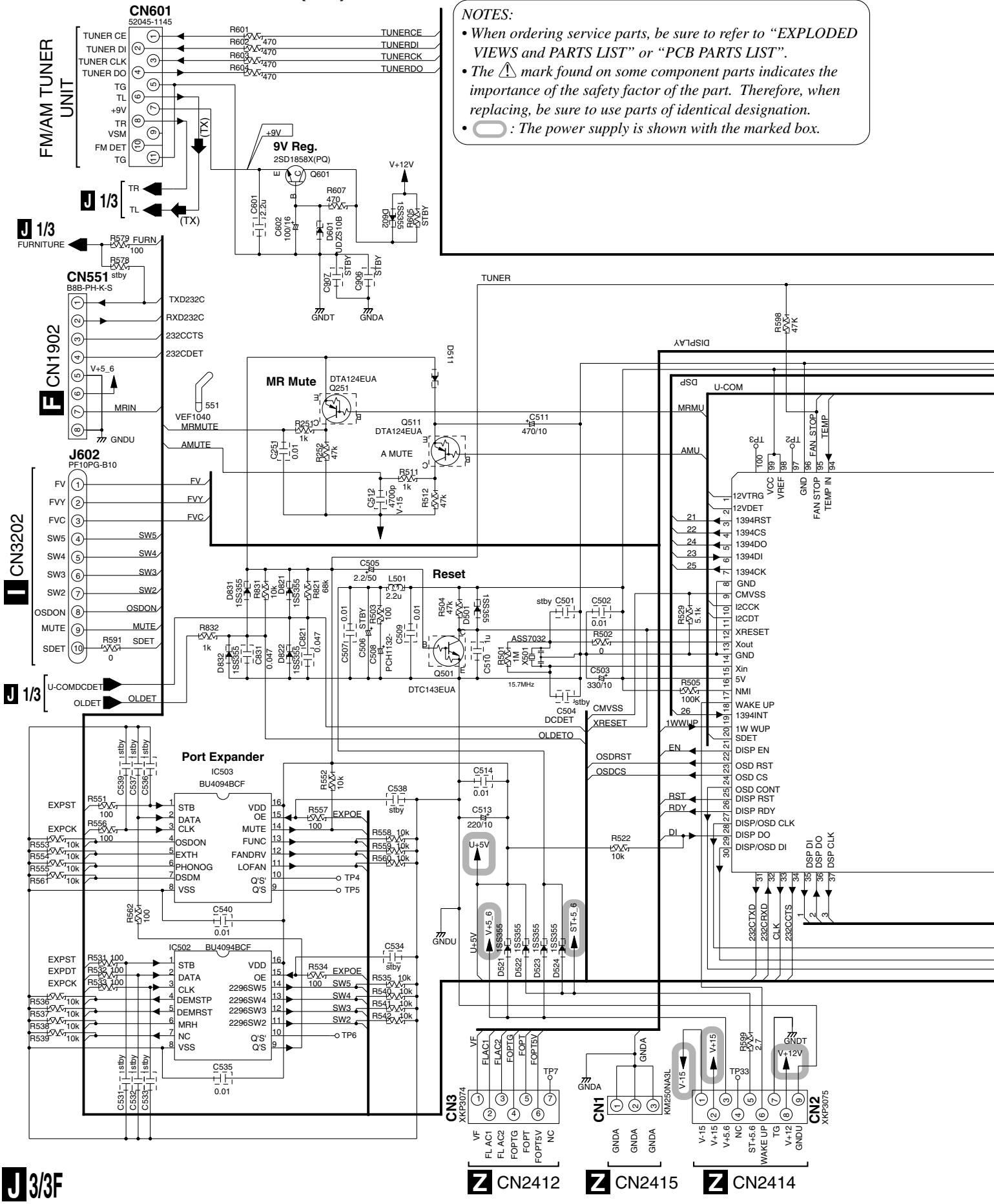
AJF VOL-SEL ASSY

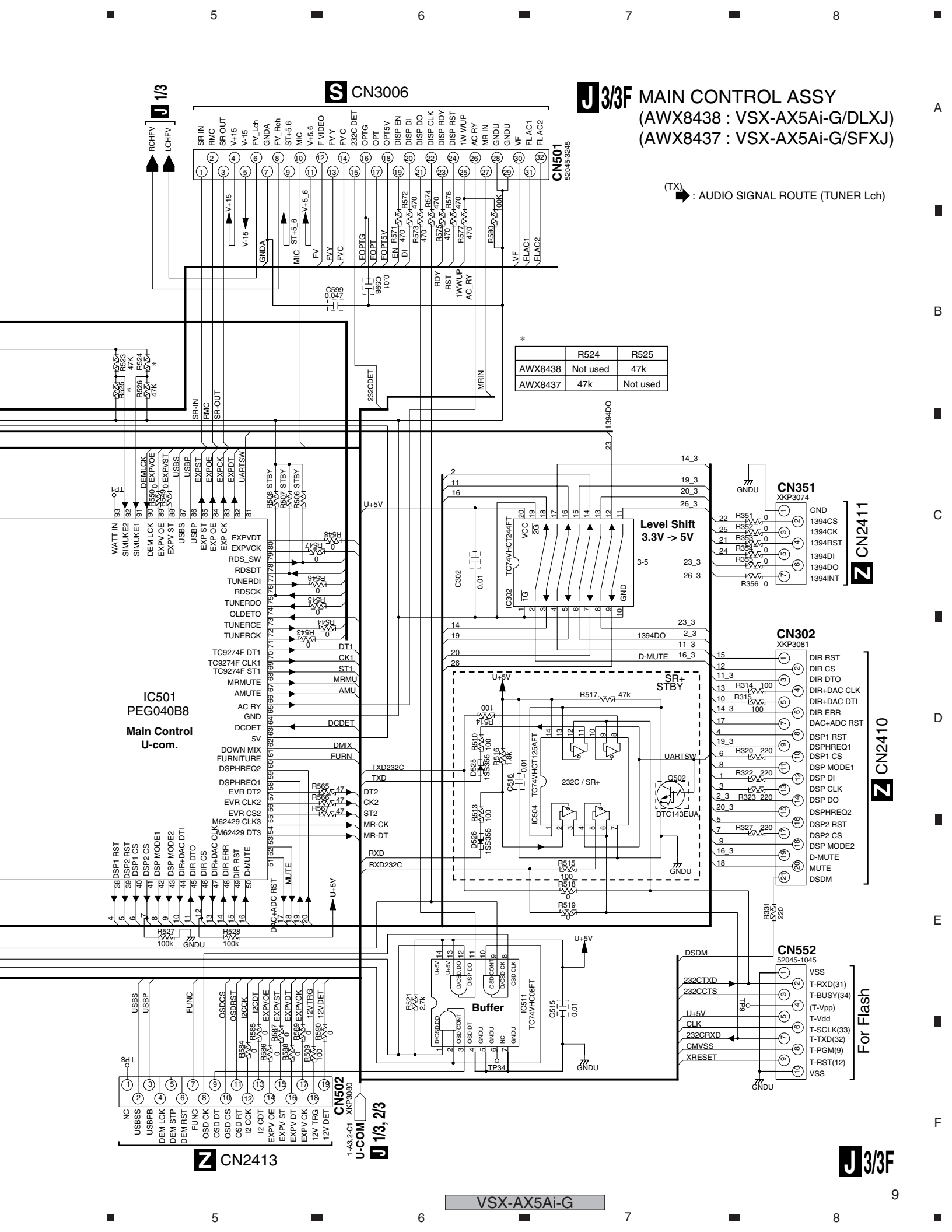



(ANP7506-B)

# 3. SCHEMATIC DIAGRAM
## 3.1 MAIN CONTROL ASSY(3/3)

*NOTES:*
- *When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *: The power supply is shown with the marked box.*

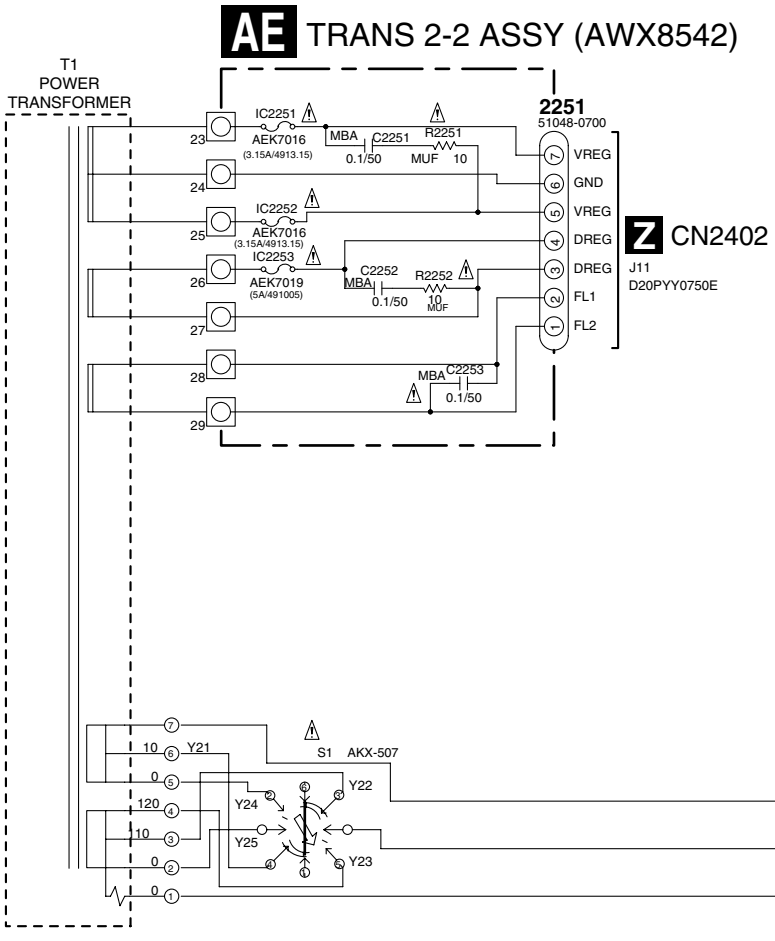



J 3/3F MAIN CONTROL ASSY
(AWX8438 : VSX-AX5Ai-G/DLXJ)
(AWX8437 : VSX-AX5Ai-G/SFXJ)
(TX) : AUDIO SIGNAL ROUTE (TUNER Lch)
S CN3006
CN501
52045-3245
J 1/3
RCHFV
LCHFV
SR IN
RMC
SR OUT
V+15
V-15
FV_Lch
GNDA
FV_Rch
ST+5.6
MIC
V+5.6
F VIDEO
FV Y
FV C
232C DET
OPTG
OPT
OPT5V
DISP EN
DISP DI
DISP DO
DISP CLK
DISP RDY
DISP RST
1W WUP
AC RY
MR IN
GNDU
VF
FL AC1
FL AC2
IC501
PEG040B8
Main Control
U-com.
CN351
XKP3074
CN2411
Z
Level Shift
3.3V -> 5V
TC74VHCT244FT
IC302
CN302
XKP3081
CN2410
SR+
STBY
232C / SR+
TC74VHCT125AFT
IC504
Q502
DTC143EUA
Buffer
IC511
TC74VHC08FT
CN552
52045-1045
For Flash
CN502
XKP3080
U-COM
J 1/3, 2/3
CN2413
1-A3,2-C1
R524 R525
AWX8438 Not used 47k
AWX8437 47k Not used
VSX-AX5Ai-G
9
J 3/3F

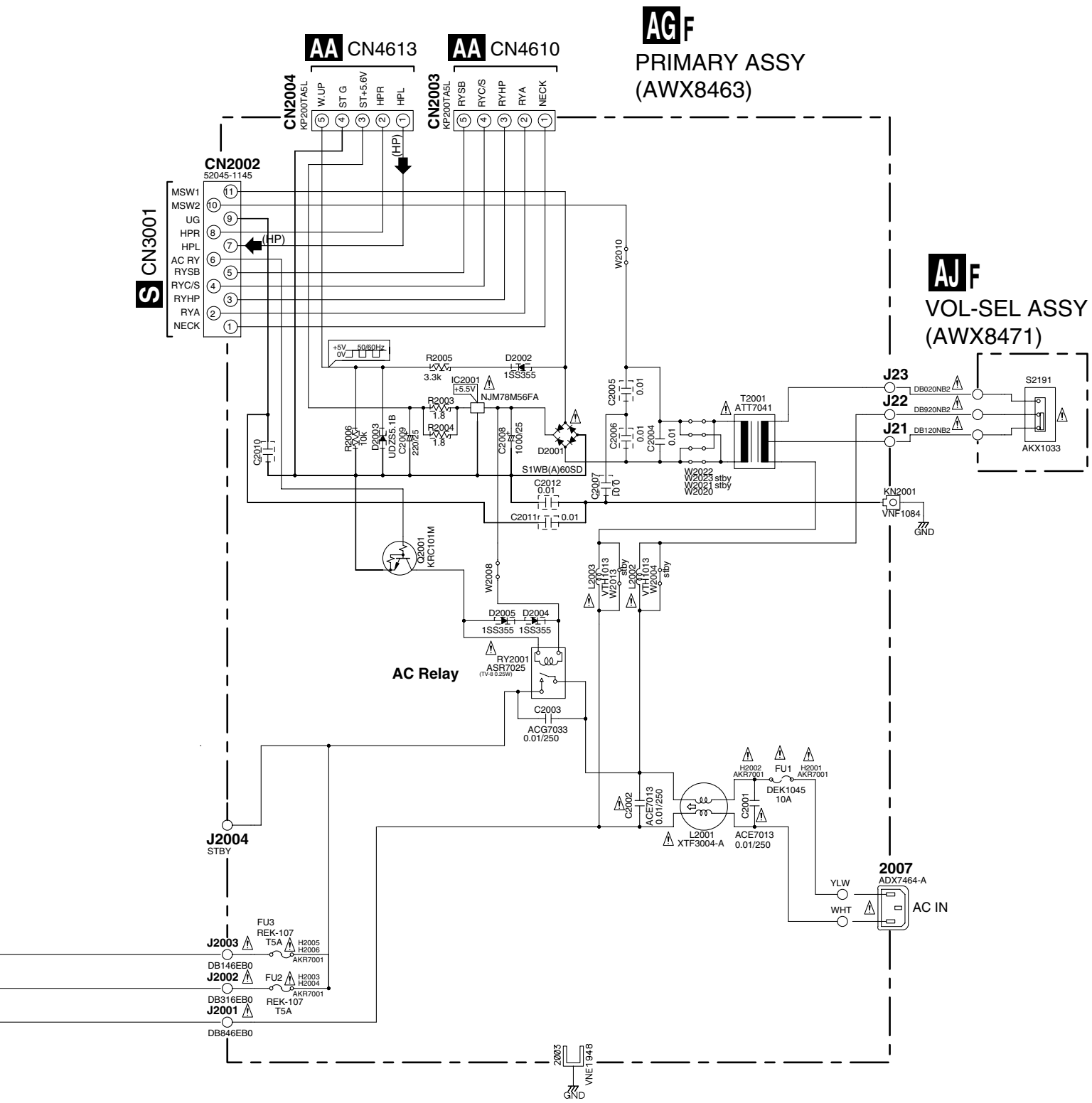
# 3.2 PRIMARY and VOL-SEL ASSYS

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 4913.15 MFD, BY LITTELFUSE INK. FOR IC2251 AND IC2252.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491005 MFD, BY LITTELFUSE INK. FOR IC2253.



(HP) : AUDIO SIGNAL ROUTE (PHONES ch)

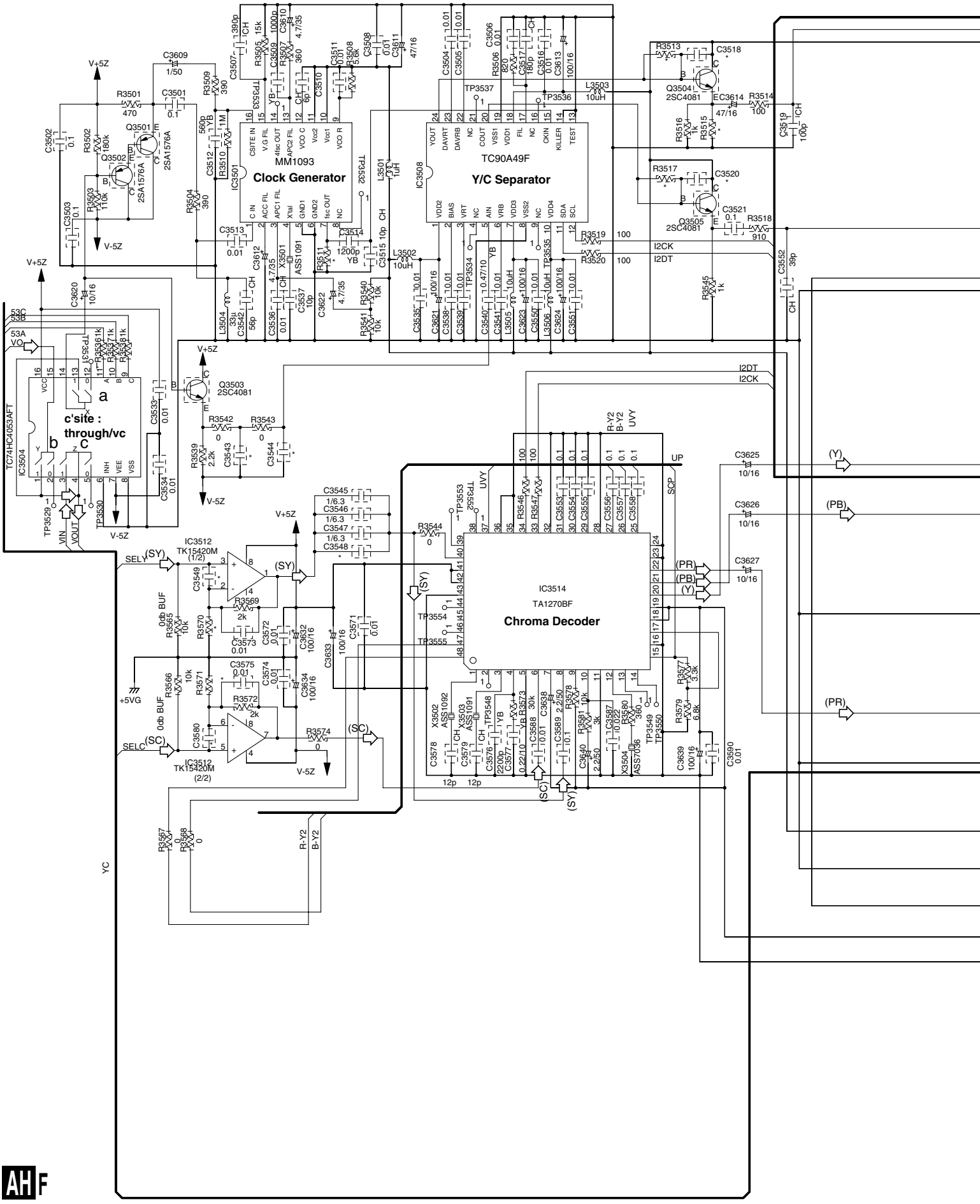



• NOTE FOR FUSE REPLACEMENT

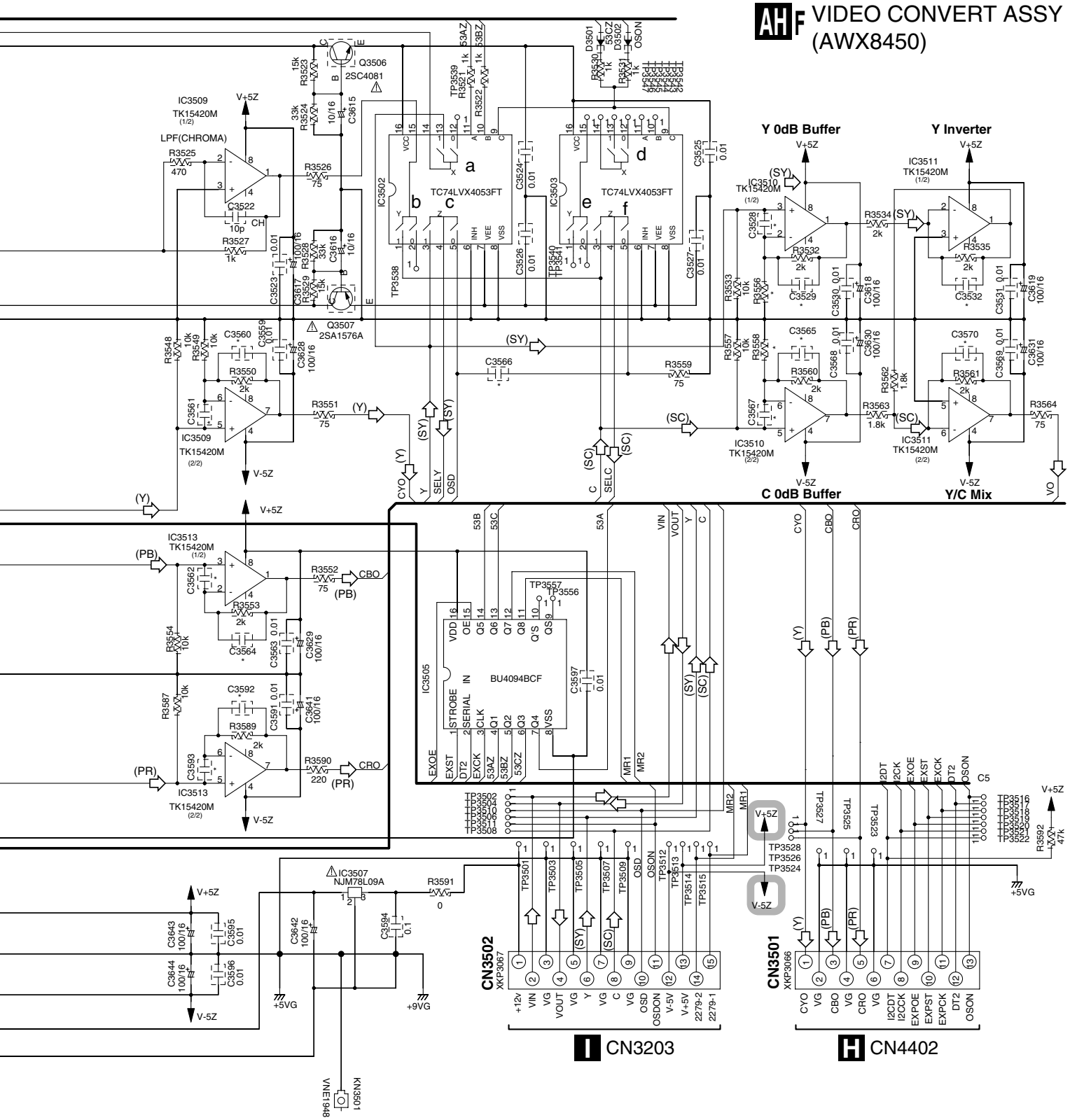
**CAUTION -** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS OF FUSE.

AGF AJF

# 3.3 VIDEO CONVERT ASSY (SFXJ type only)



# AHF VIDEO CONVERT ASSY (AWX8450)




: VIDEO SIGNAL ROUTE

(SY) : VIDEO SIGNAL ROUTE (S VIDEO Y ch)

(SC) : VIDEO SIGNAL ROUTE (S VIDEO C ch)

(Y) : VIDEO SIGNAL ROUTE (Y)

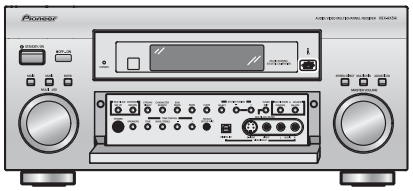
(PB) : VIDEO SIGNAL ROUTE ($P_B$)

(PR) : VIDEO SIGNAL ROUTE ($P_R$)

AHF

Pioneer sound.vision.soul

# Service Manual



VSX-AX5Ai-S

ORDER NO.
**RRV3018**

## AUDIO/VIDEO MULTI-CHANNEL RECEIVER

# VSX-AX5Ai-S

### THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

| Model | Type | Power Requirement | The voltage can be converted by the following method. |
|---|---|---|---|
| VSX-AX5Ai-S | HYXJ | AC220-230V | AC240V, * |

***:Alter the wiring of the power-supply block at the primary winding of Power transformer referring to the Line Voltage Selection described in Service Manual.**

For details, refer to "Important symbols for good services".

**PIONEER CORPORATION** 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
**PIONEER ELECTRONICS (USA) INC.** P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936
ⓒ**PIONEER CORPORATION 2004**

T-ZZV AUG. 2004 printed in Japan

# SAFTY INFORMATION

**This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.**

**Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

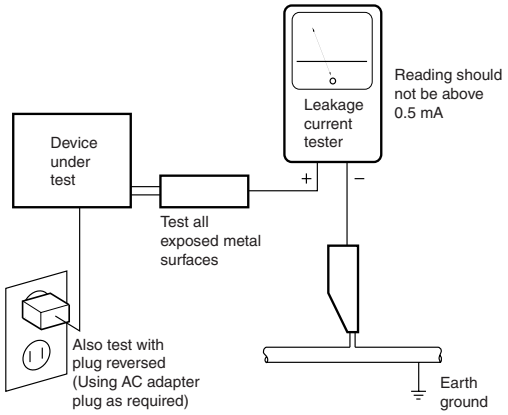
## (FOR USA MODEL ONLY)

### 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Leakage current tester
Reading should not be above 0.5 mA
Device under test
+
–
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

### 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

## [Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

### 1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

### 2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

### 3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

### 4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

### 5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

# CONTENTS


SAFTY INFORMATION ..... 2
1. SPECIFICATIONS ..... 6
2. EXPLODED VIEWS AND PARTS LIST ..... 8
2.1 PACKING ..... 8
2.2 EXTERIOR SECTION ..... 10
2.3 CHASSIS SECTION ..... 12
2.4 REAR PANEL SECTION ..... 14
2.5 HEAT SINK SECTION ..... 16
2.6 FRONT PANEL SECTION ..... 18
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM ..... 20
3.1 BLOCK DIAGRAM ..... 20
3.1.1 AUDIO BLOCK DIAGRAM ..... 20
3.1.2 DSP BLOCK DIAGRAM ..... 22
3.1.3 1394 BLOCK DIAGRAM ..... 24
3.1.4 POWER AMP BLOCK DIAGRAM ..... 25
3.1.5 VIDEO BLOCK DIAGRAM ..... 26
3.2 OVERALL WIRING DIAGRAM ..... 28
3.3 7.1 CH I/O, V-AUDIO IN, FRONT IN and OPTICAL IN ASSYS ..... 30
3.4 INPUT CONNECT and 12V TRIGGER ASSYS ..... 32
3.5 COAXIAL IN ASSY ..... 34
3.6 COMPONENT ASSY ..... 36
3.7 VIDEO ASSY ..... 38
3.8 MAIN CONTROL ASSY (1/3) ..... 40
3.9 MAIN CONTROL ASSY (2/3) ..... 42
3.10 MAIN CONTROL ASSY (3/3) ..... 44
3.11 MIC & F.OPT IN, MIC AMP and DSP CONNECTION ASSYS ..... 46
3.12 POWER AMP IN, FAN CONNECTION and FAN DRIVE ASSYS ..... 48
3.13 DSP ASSY (1/2) ..... 50
3.14 DSP ASSY (2/2) ..... 52
3.15 1394 ASSY (1/2) ..... 54
3.16 1394 ASSY (2/2) ..... 56
3.17 DISPLAY ASSY ..... 58
3.18 VOLUME, MULTI JOG, HEADPHONE and MECHA SW ASSYS ..... 60
3.19 POWER AMP-L ASSY ..... 62
3.20 POWER AMP-R and POWER AMP-C ASSYS ..... 64
3.21 REGULATOR ASSY ..... 66
3.22 SP/PS, DIODE, TRANS 2-1 and VH TR ASSYS ..... 68
3.23 TRANS 2-2, TRANS 1 and PRIMARY ASSYS ..... 70
3.24 VIDEO CONVERT ASSY ..... 72
4. PCB CONNECTION DIAGRAM ..... 74
4.1 7.1CH I/O ASSY ..... 75
4.2 V-AUDIO IN ASSY ..... 76
4.3 FRONT IN and OPTICAL IN ASSYS ..... 77
4.4 COAXIAL IN ASSY ..... 78
4.5 INPUT CONNECT and 12V TRIGGER ASSYS ..... 79
4.6 COMPONENT ASSY ..... 81
4.7 VIDEO ASSY ..... 82
4.8 MAIN CONTROL ASSY ..... 84
4.9 MIC & F. OPT IN, MIC AMP and DSP CONNECTION ASSYS ..... 88
4.10 POWER AMP IN ASSY ..... 90
4.11 FAN CONNECTION ASSY ..... 91
4.12 FAN DRIVE ASSY ..... 92
4.13 DSP ASSY ..... 93
4.14 1394 ASSY ..... 95
4.15 DISPLAY ASSY ..... 96
4.16 VOLUME, MULTI JOG, HEADPHONE and MECHA SW ASSYS ..... 98
4.17 POWER AMP L and POWER AMP C ASSYS ..... 100
4.18 POWER AMP R ASSY ..... 104
4.19 REGULATOR ASSY ..... 108
4.20 SP/PS ASSY ..... 112
4.21 DIODE, TRANS 2-1 and VH TR ASSYS ..... 114
4.22 TRANS 2-2, TRANS 1 and PRIMARY ASSYS ..... 116
4.23 VIDEO CONVERT ASSY ..... 118
5. PCB PARTS LIST ..... 119
6. ADJUSTMENT ..... 129

7. GENERAL INFORMATION .....130
7.1 DIAGNOSIS .....130
7.1.1 PROTECTION CIRCUIT CONTROL SPECIFICATION .....130
7.1.2 DIAGNOSTICS OF AMPLIFIER SECTION .....132
7.1.3 TROUBLE SHOOTING .....133
7.1.4 OUTLINE OF THE 1394 UNIT .....138
7.1.5 DISASSEMBLY .....140
7.2 PARTS .....145
7.2.1 IC .....145
7.2.2 DISPLAY .....171
7.3 CLEANING .....173
7.4 REMOTE CONTROL UNIT .....174
7.4.1 EXPLODED VIEWS AND PARTS LIST .....174
8. PANEL FACILITIES .....175

# 1. SPECIFICATIONS

### Amplifier section

Continuous Power Output (DIN)

Stereo

Front . . . . . 160 W + 160 W (DIN 1kHz, THD 1%, 6 Ω)

Multichannel

Front . . . . . 120 W + 120 W (DIN 1kHz, THD 1%, 8 Ω)
Center . . . . . 120 W + 120 W (DIN 1kHz, THD 1%, 8 Ω)
Surround . . . . 120 W + 120 W (DIN 1kHz, THD 1%, 8 Ω)
Surround back 120 W + 120 W (DIN 1kHz, THD 1%, 8 Ω)

Rated Power Output (Stereo) . . . . . 140W+140W
(20Hz – 20kHz, 0.09%, 6Ω)

Rated Power Output . . . . . 110W+110W
(20Hz – 20kHz, 0.09%, 8Ω)

### Audio Section

Input (Sensitivity/Impedance)
PHONO MM . . . . . 4.7 mV/47 k Ω
LINE . . . . . 335 mV/47 k Ω

Frequency Response
PHONO MM . . . . . 20 Hz to 20,000 Hz ± 0.3 dB
LINE . . . . . 5 Hz to 100,000 Hz $^{+0}_{-3}$ dB

Output (Level/Impedance)
LINE . . . . . 335 mV/2.2 k Ω

Tone Control
BASS . . . . . ± 6 dB (100 Hz)
TREBLE . . . . . ± 6 dB (10 kHz)
LOUDNESS . . . . . +4/+2 dB (100Hz/10 kHz)
(at volume position -40dB)

Signal-to-Noise Ratio (IHF, short circuited, A network)
LINE . . . . . 101 dB

Signal-to-Noise Ratio
[DIN (Continuous rated power output/50 mW)]
LINE . . . . . 92/65 dB

### Composite Video / S-Video Section

Input (Sensitivity/Impedance) . . . . . 1 Vp-p/75 Ω
Output (Level/Impedance) . . . . . 1 Vp-p/75 Ω
Signal-to-Noise Ratio . . . . . 65 dB
Frequency Response . . . . . 5 Hz to 10 MHz $^{+0}_{-3}$ dB

### Component Video Section

Input (Sensitivity/Impedance) . . . . . 1 Vp-p/75 Ω
Output (Level/Impedance) . . . . . 1 Vp-p/75 Ω
Signal-to-Noise Ratio . . . . . 65 dB
Frequency Response . . . . . 5 Hz to 100 MHz $^{+0}_{-3}$ dB

### FM Tuner Section

Frequency Range . . . . . 87.5 MHz to 108 MHz
Usable Sensitivity . . . . . Mono: 15.2 dBf, IHF (1.6 µV/75 Ω)
50 dB Quieting Sensitivity . . . . . Mono: 20.2 dBf
Stereo: 41.2 dBf
Sensitivity (DIN) . . . . . Mono: 1.1 µV (S/N 26 dB)
Stereo: 50 µV (S/N 46 dB)
Signal-to-Noise Ratio . . . . . Mono: 76 dB (at 85 dBf)
Stereo: 72 dB (at 85 dBf)
Signal-to-Noise Ratio (DIN) . . . . . Mono: 62 dB
Stereo: 58 dB
Distortion . . . . . Stereo: 0.6% (1 kHz)
Alternate Channel Selectivity . . . . . 70 dB (400 kHz)
Stereo Separation . . . . . 40 dB (1 kHz)
Frequency Response . . . . . 30 Hz to 15 kHz ± 1dB
Antenna Input . . . . . 75 Ω unbalanced

### AM Tuner Section

Frequency Range . . . . . 531 kHz to 1,602 kHz
Sensitivity (IHF, Loop antenna) . . . . . 350 µV/m
Selectivity . . . . . 30 dB
Signal-to-Noise Ratio . . . . . 50 dB
Antenna . . . . . Loop antenna

### Miscellaneous

Power Requirements . . . . . AC 220 – 230 V, 50/60 Hz
Power Consumption . . . . . 600 W
Power Consumption in standby . . . . . 0.8W
AC outlet (switched) . . . . . 100 W MAX
Dimensions . . . . . 420 (W) x 188 (H) x 464 (D) mm
Weight (without package) . . . . . 21.2 kg

### Furnished Parts

Microphone (for Auto Surround Setup) . . . . . 1
Microphone stand . . . . . 1
Remote control unit . . . . . 1
Alkaline batteries (AA IEC LR6) . . . . . 4
AM loop antenna . . . . . 1
FM wire antenna . . . . . 1
Power cord . . . . . 1
These operating instructions

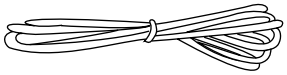
**Note**

Specifications and the design are subject to possible modifications without notice, due to improvements.

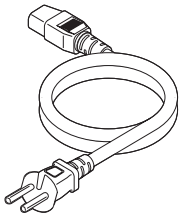

- Lucasfilm and THX are trademarks or registered trademarks of Lucasfilm, Ltd. and TM. Surround EX is a jointly developed technology of THX and Dolby Laboratories, and is a trademark of Dolby Laboratories. All rights reserved. Used under authorization.
- Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic”, “Surround EX” and double-D symbol are trademarks of Dolby Laboratories.
- "DTS", "DTS-ES Extended Surround" and "Neo:6" are trademarks of Digital Theater Systems, Inc.

## ● Accessories

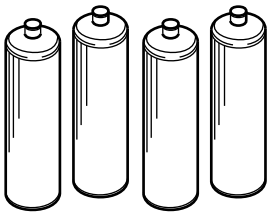
AM Loop Antenna
(ATB7013)



FM Wire Antenna
(ADH7030)

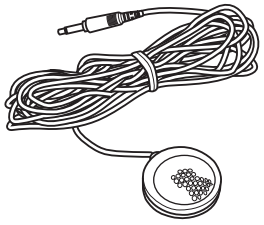


AC Power Cord
(ADG7062)

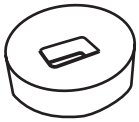


"AA" IEC LR6 batteries

Remote Control Unit
(AXD7364)



Microphone for Auto
Surround Sound Setup
(APM7004)

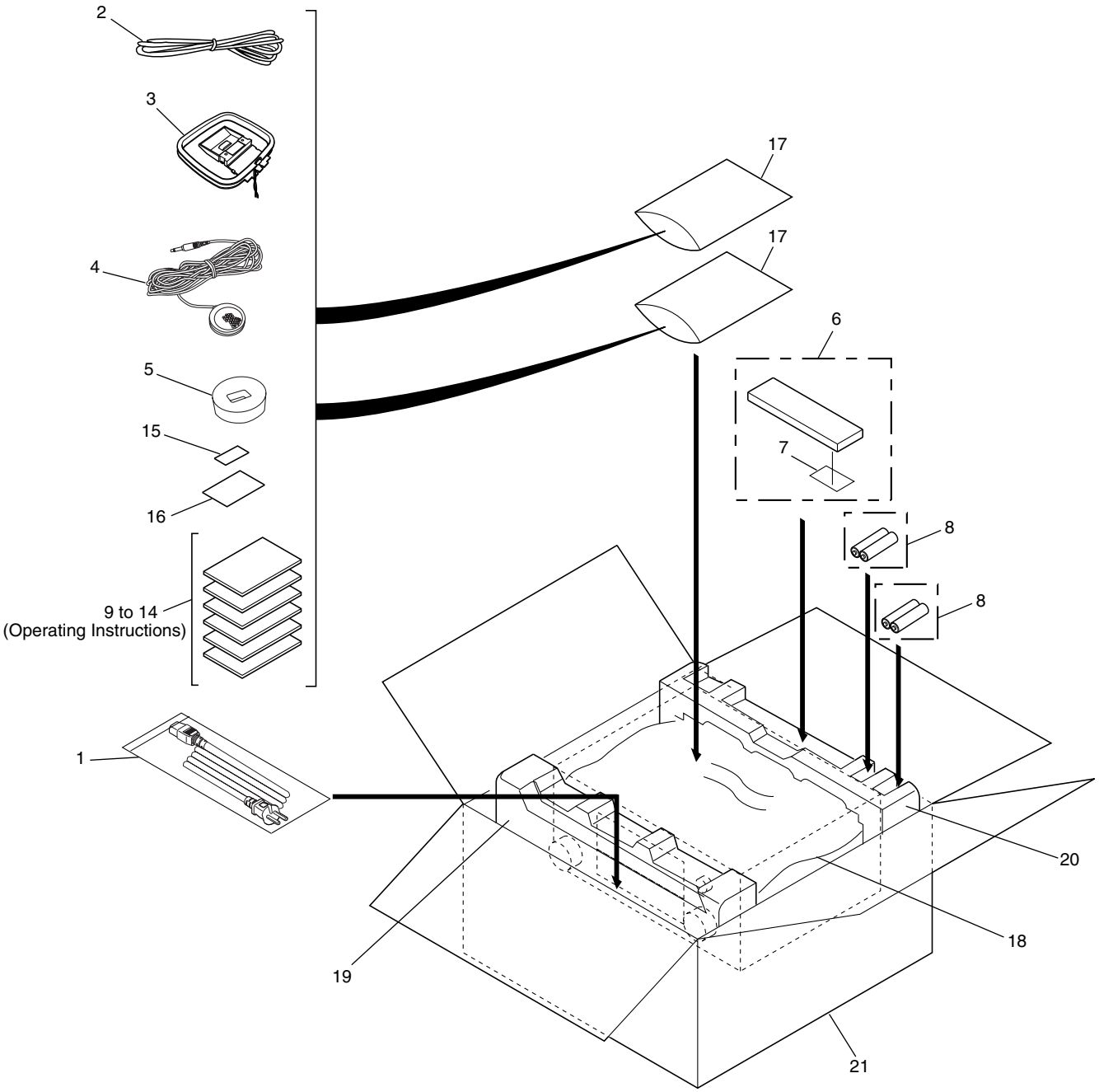


Microphone Stand for Auto
Surround Sound Setup
(AEB7269)

# 2. EXPLODED VIEWS AND PARTS LIST

*NOTES:*
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

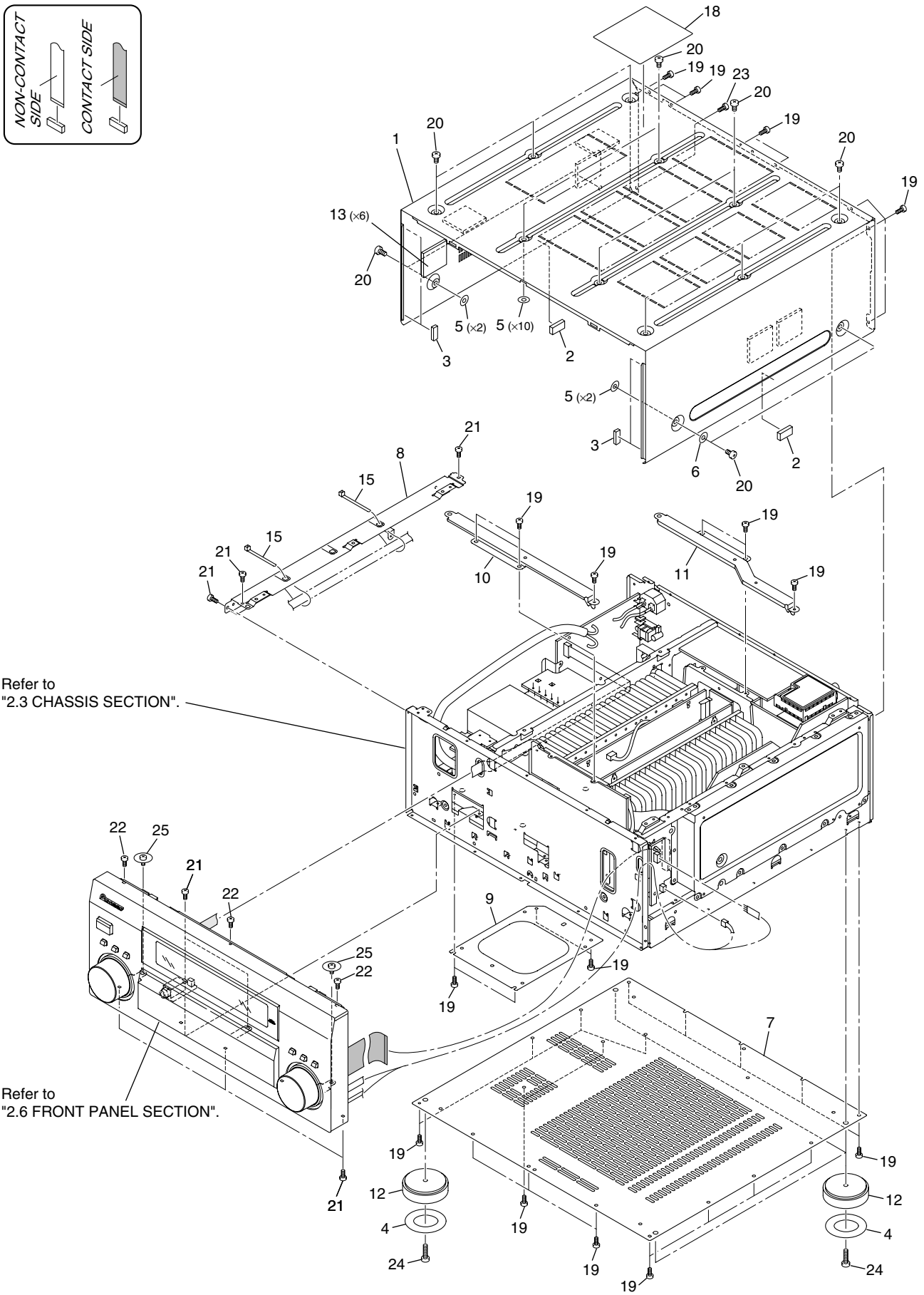
## 2.1 PACKING



## PACKING parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | 1 | Power Cord | ADG7062 |
| | 2 | FM Wire Antenna | ADH7030 |
| | 3 | AM Loop Antenna | ATB7013 |
| | 4 | Microphone for Auto Surround Sound Setup | APM7004 |
| | 5 | Microphone Stand for Auto Surround Sound Setup | AEB7269 |
| | 6 | Remote Control Unit | AXD7364 |
| | 7 | Battery Cover | AZN7940 |
| NSP | 8 | Dry Cell Battery (AA/LR6) | VEM1023 |
| | 9 | Operating Instructions (English / French) | ARB7308 |
| | 10 | Operating Instructions (French) | ARC7541 |
| | 11 | Operating Instructions (German) | ARC7542 |
| | 12 | Operating Instructions (Italian) | ARC7543 |
| | 13 | Operating Instructions (French / Spanish) | ARC7544 |
| | 14 | Operating Instructions (Dutch) | ARC7545 |
| | 15 | Caution Sheet SP, E | ARM7056 |
| NSP | 16 | Warranty Card | ARY7065 |
| NSP | 17 | Polyethylene Bag | AHG7117 |
| | 18 | Packing Sheet | RHC1023 |
| | 19 | Front Pad 45 | AHA7374 |
| | 20 | Rear Pad 45 | AHA7375 |
| | 21 | Packing Case AX5A/HY | AHD8273 |

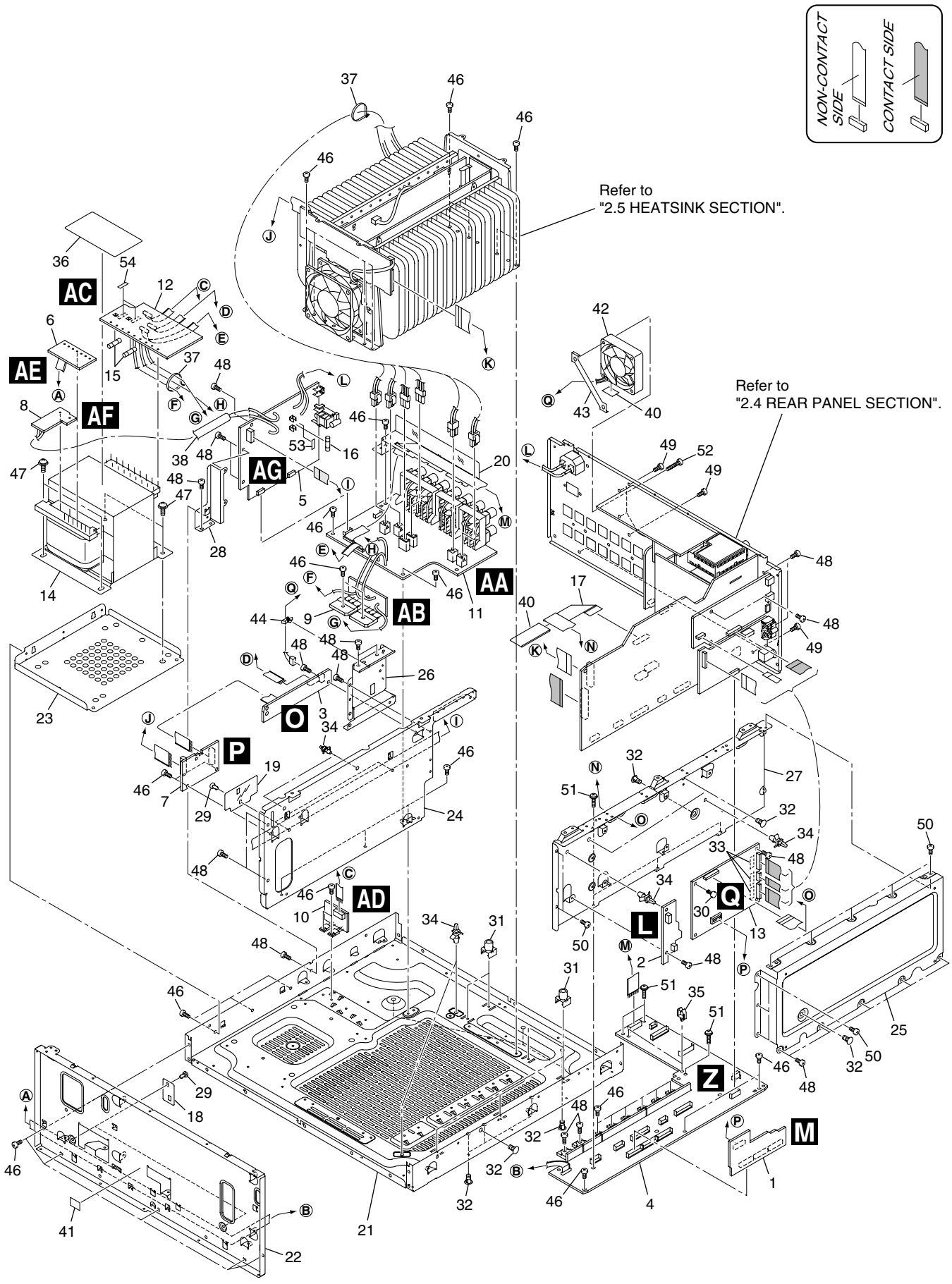
# 2.2 EXTERIOR SECTION



## EXTERIOR SECTION parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Bonnet Case 56S | AZN7993 |
| | 2 | Spacer 45A (3.5 x 10 x 27) | AEB7263 |
| | 3 | Spacer 45B (6 x 7 x 13) | AEB7264 |
| | 4 | Cushion | AEC7224 |
| | 5 | Spacer Circle (10 x 5) | AEC7330 |
| | 6 | Spacer Circle (CLEAR) | AEC7531 |
| | 7 | Bottom Plate 56 | ANF7039 |
| | 8 | Left Beam 45 | ANG7401 |
| | 9 | Stabilizer 45 | ANG7408 |
| | 10 | Bridge Frame 45F | ANG7409 |
| | 11 | Bridge Frame 45R | ANG7410 |
| | 12 | Insulator 56 | ANL7028 |
| | 13 | Bonnet Sheet (2 x 50 x 50) | AEB7329 |
| | 14 | ••••• | |
| NSP | 15 | Binder | ZCA-BK1 |
| | 16 | ••••• | |
| | 17 | ••••• | |
| | 18 | Label (DD/DTS/THX) | ARW7281 |
| | 19 | Screw | ABA7098 |
| | 20 | Screw | ABA7119 |
| | 21 | Screw | ABA7102 |
| | 22 | Screw | ABA7118 |
| | 23 | Screw | ABA7101 |
| | 24 | Screw | ABA7120 |
| | 25 | Screw | ABA7110 |

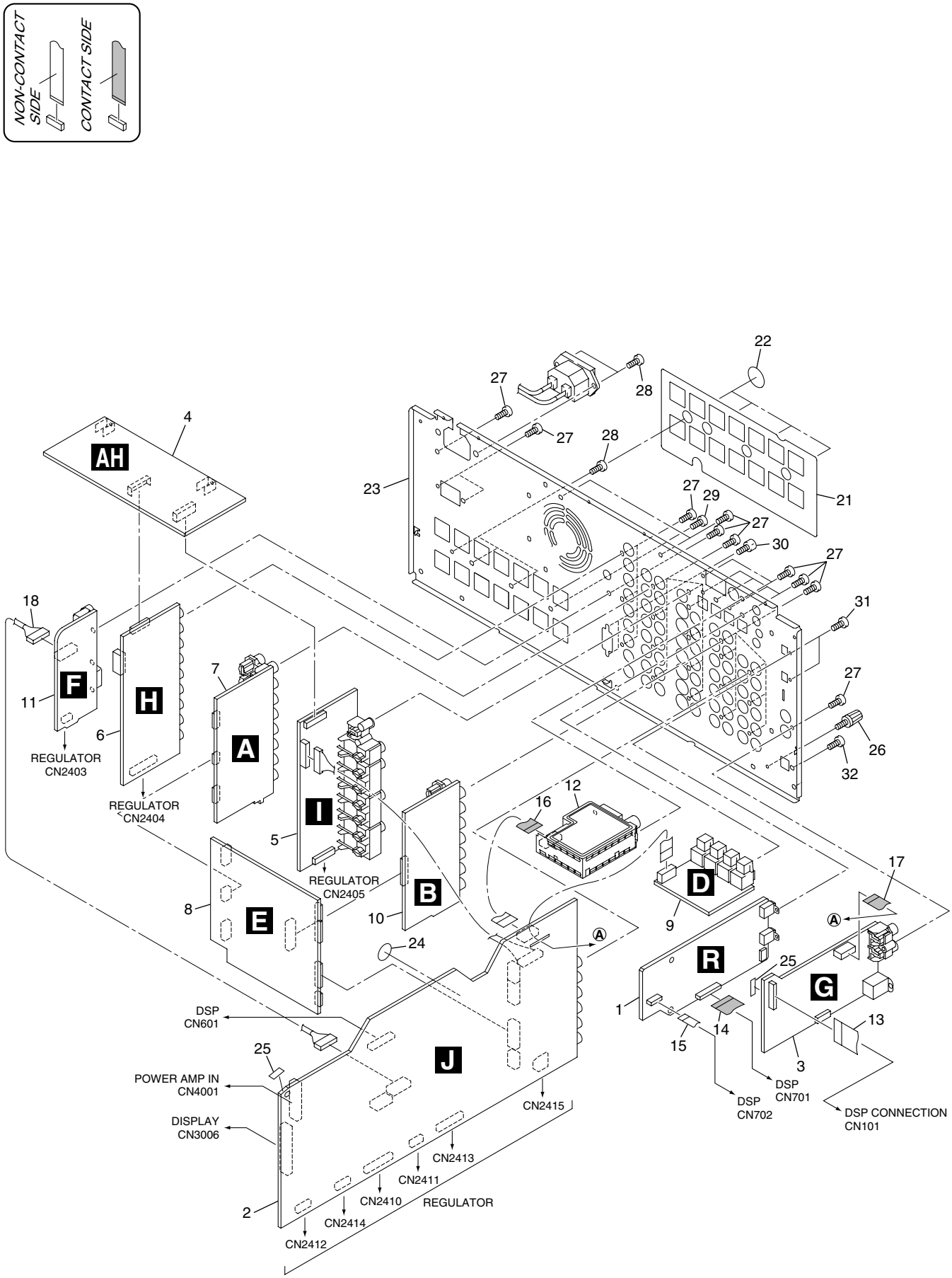
# 2.3 CHASSIS SECTION



## CHASSIS SECTION parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | DSP CONNECTION Assy | AWX8441 |
| | 2 | MIC AMP Assy | AWX8447 |
| | 3 | FAN CONNECTION Assy | AWX8448 |
| | 4 | REGULATOR Assy | AWX8541 |
| | 5 | PRIMARY Assy | AWX8461 |
| | 6 | TRANS 2-2 Assy | AWX8542 |
| | 7 | FAN DRIVE Assy | AWX8488 |
| | 8 | TRANS 1 Assy | AWX8464 |
| | 9 | DIODE Assy | AWX8555 |
| | 10 | VH TR Assy | AWX8557 |
| | 11 | SP/PS Assy | AWX8470 |
| | 12 | TRANS 2-1 Assy | AWX8551 |
| | 13 | DSP Assy | AWX8489 |
| ⚠ | 14 | Power Transformer (T1) | ATS7381 |
| ⚠ | 15 | Fuse (FU4, 5 : T2.5AL250V) | REK1026 |
| ⚠ | 16 | Fuse (FU1 : T4AL250V) | REK-106 |
| | 17 | 21P Flexible Cable (J7) | ADD7355 |
| | 18 | Styling Sheet | AEC7413 |
| | 19 | Styling Sheet B | AEC7437 |
| | 20 | Barrier 45 | AEC7444 |
| NSP | 21 | Under Base 56 | ANA7170 |
| NSP | 22 | Panel Stay 45 | AND7047 |
| | 23 | Trans. Frame 45 | ANG7399 |
| | 24 | Trans. Shield 45 | ANG7400 |
| | 25 | DSP Shield 45 B | ANG7403 |
| | 26 | Fan Box 45 | ANG7413 |
| | 27 | DSP Shield 1394 A | ANG7420 |
| | 28 | Primary Angle 56 | ANG7526 |
| | 29 | Push Rivet | AEC7370 |
| | 30 | Nyron Rivet | AEC7408 |
| | 31 | PCB Mold | AMR2534 |
| | 32 | Card Spacer | DNK2769 |
| NSP | 33 | Tape | PNM1249 |
| | 34 | Locking Card Spacer | PNW2917 |
| | 35 | Holder | VEC1355 |
| NSP | 36 | Trans. Label 56 | AAX8048 |
| NSP | 37 | Binder | ZCA-BK1 |
| | 38 | Glass Tube (14 x 260) | ADN7009 |
| | 39 | ••••• | |
| NSP | 40 | Tape | ZTA-156A-19 |
| | 41 | Cushion 11 x 11 | AED7088 |
| ⚠ | 42 | Fan Motor (Rear) | AXM7031 |
| | 43 | Fan Plate | ANG7153 |
| NSP | 44 | Mini Clamp | VEC1597 |
| | 45 | ••••• | |
| | 46 | Screw | ABA7098 |
| | 47 | Screw | ABA7109 |
| | 48 | Screw | ABA7102 |
| | 49 | Screw | ABA7101 |
| | 50 | Screw | ABA7118 |
| | 51 | Screw | ABA7100 |
| | 52 | Screw | BBZ30P200FCC |
| NSP | 53 | Fuse Card | AAX7099 |
| NSP | 54 | Fuse Card | AAX7277 |

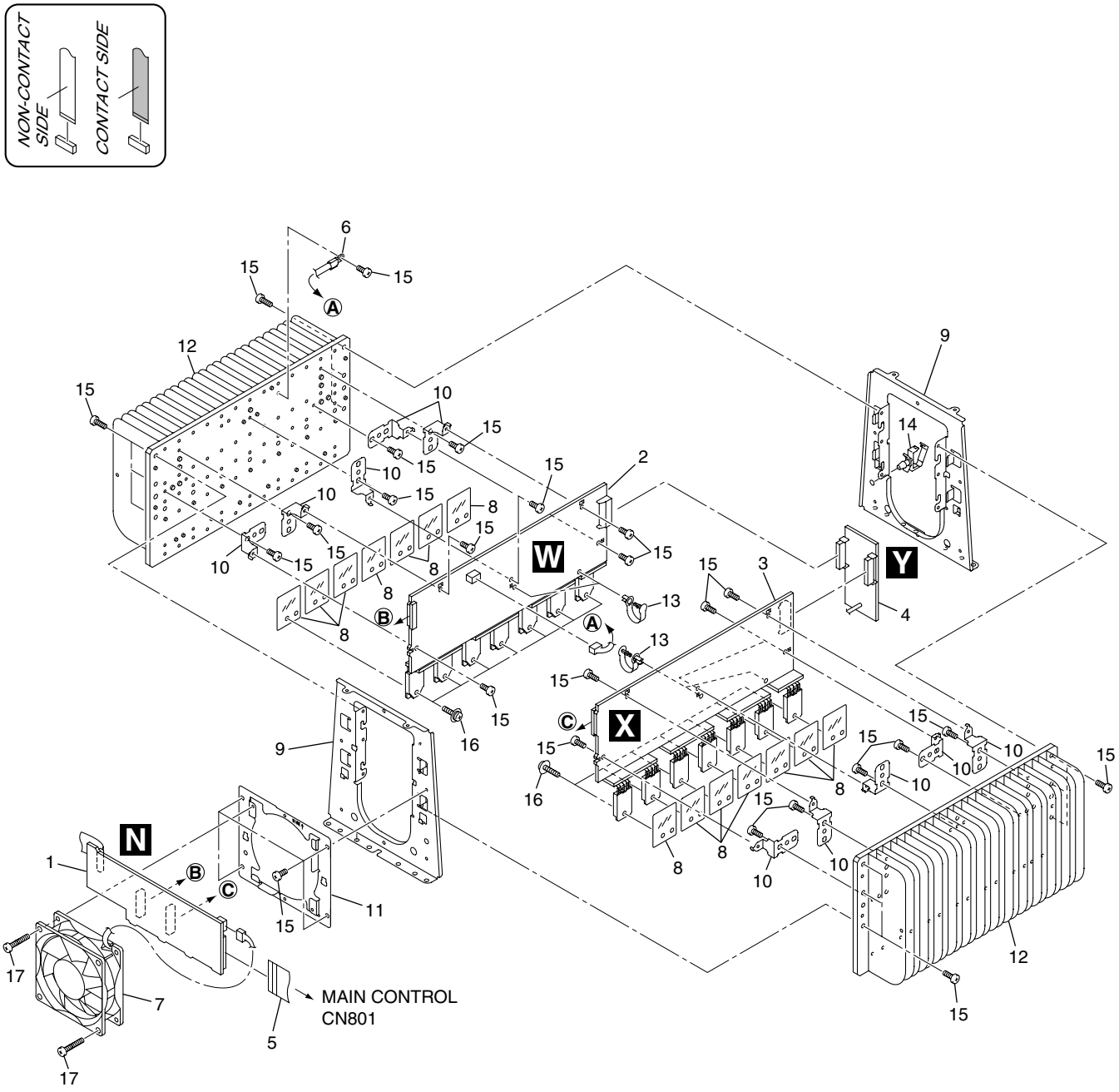
# 2.4 REAR PANEL SECTION



## REAR PANEL SECTION parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | 1394 Assy | AWK7834 |
| | 2 | MAIN CONTROL Assy | AWX8435 |
| | 3 | COAXIAL IN Assy | AWX8443 |
| | 4 | VIDEO CONVERT Assy | AWX8451 |
| | 5 | VIDEO Assy | AWX8452 |
| | 6 | COMPONENT Assy | AWX8454 |
| | 7 | 7.1CH I/O Assy | AWX8543 |
| | 8 | INPUT CONNECT Assy | AWX8546 |
| | 9 | OPTICAL IN Assy | AWX8556 |
| | 10 | V-AUDIO IN Assy | AWX8558 |
| | 11 | 12V TRIGGER Assy | AWX8548 |
| | 12 | FM/AM TUNER Unit | AXX7170 |
| | 13 | 20P Flexible Cable (J6) | ADD7354 |
| | 14 | 22P Flexible Cable (J16) | ADD7431 |
| | 15 | 10P Flexible Cable (J17) | ADD7432 |
| | 16 | 11P Flexible Cable (J8) | ADD7468 |
| | 17 | 9P Flexible Cable (J5) | ADD7469 |
| | 18 | Connector Assy (8P)(J1902) | ADE7085 |
| | 19 | ••••• | |
| | 20 | ••••• | |
| | 21 | Speaker Sheet KU | AAK8016 |
| | 22 | Cushion Circle 16B | AED7052 |
| | 23 | Rear Panel AX5AI | ANC8280 |
| | 24 | Cushion Circle 6B | AED7044 |
| NSP | 25 | Tape | PNM1249 |
| | 26 | Terminal Screw | AKE-031 |
| | 27 | Screw | ABA7098 |
| | 28 | Screw | ABA7102 |
| | 29 | Screw | ABA1208 |
| | 30 | Screw | ABA7078 |
| | 31 | Screw | PCZ26P060FCC |
| | 32 | Screw | PMZ30P060FCC |

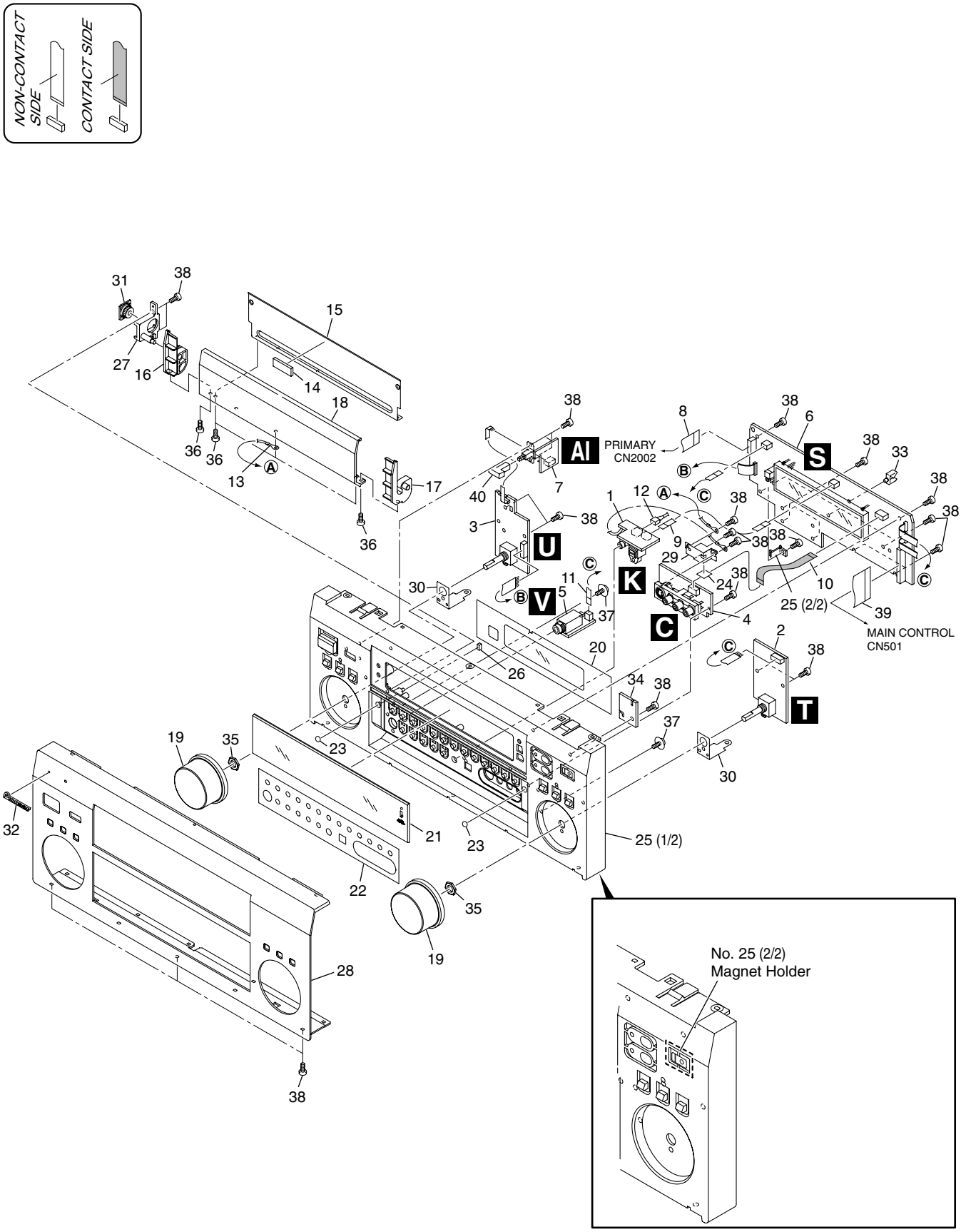
# 2.5 HEAT SINK SECTION



## HEAT SINK SECTION parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| NSP | 1 | POWER AMP IN Assy | AWX8544 |
| | 2 | POWER AMP-L Assy | AWX8560 |
| | 3 | POWER AMP-R Assy | AWX8561 |
| | 4 | POWER AMP-C Assy | AWX8562 |
| | 5 | 24P Flexible Cable (J14) | ADD7357 |
| ⚠ | 6 | Thermistor (TH1) | AEX7014 |
| ⚠ | 7 | Fan Motor (Front) | AXM7032 |
| | 8 | Mica Sheet 45 | AEE7047 |
| | 9 | H.S Angle 45 | ANG7404 |
| | 10 | PCB Angle 45 | ANG7406 |
| | 11 | Fan Holder 80 | ANG7407 |
| NSP | 12 | Heatsink 45 | ANH7152 |
| NSP | 13 | Speed Clamp | AEC7445 |
| NSP | 14 | Wire Saddle | DEC1450 |
| | 15 | Screw | ABA7102 |
| | 16 | Screw | ABA7085 |
| | 17 | Screw | BBZ30P300FTC |

# 2.6 FRONT PANEL SECTION



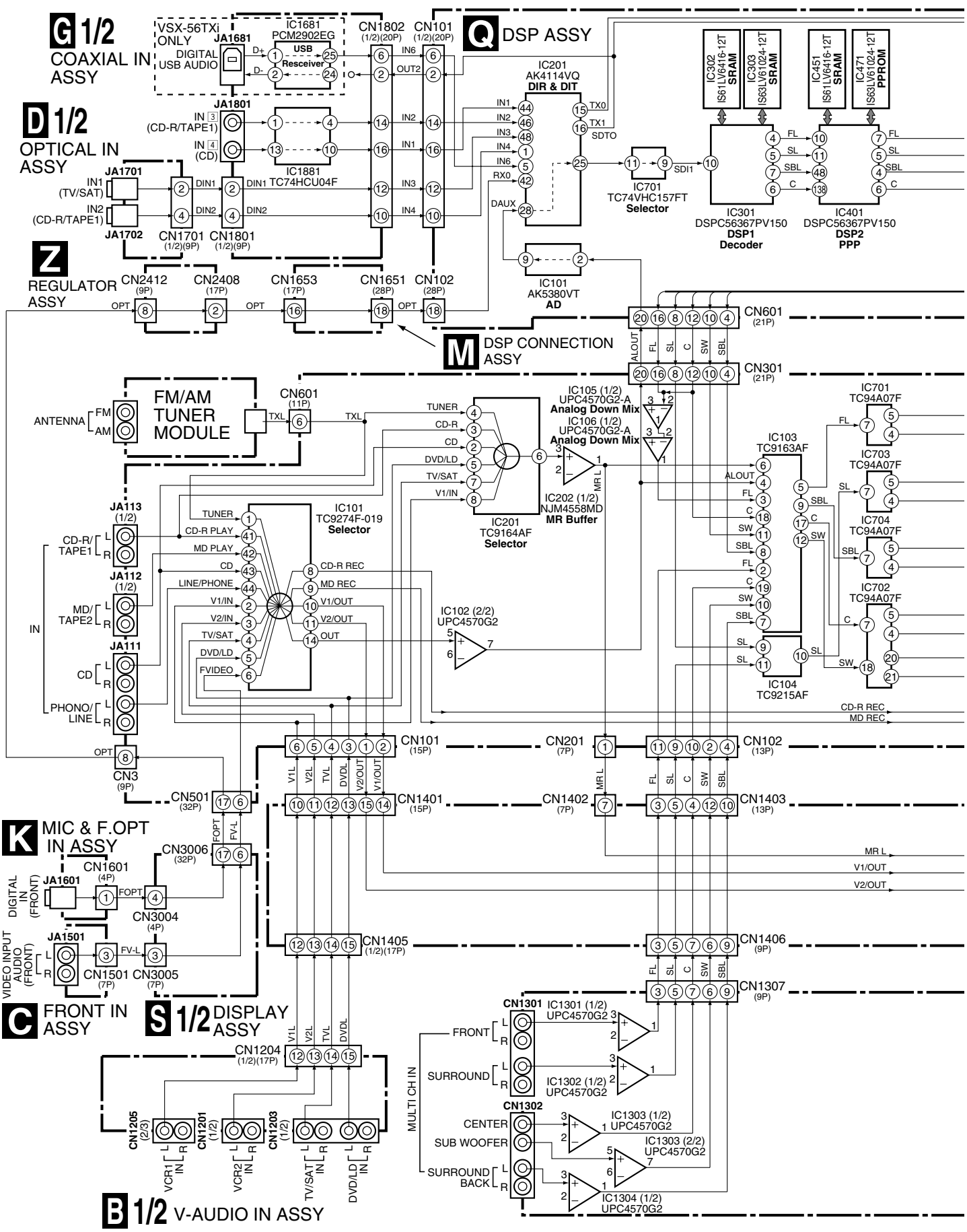
## FRONT PANEL SECTION parts List

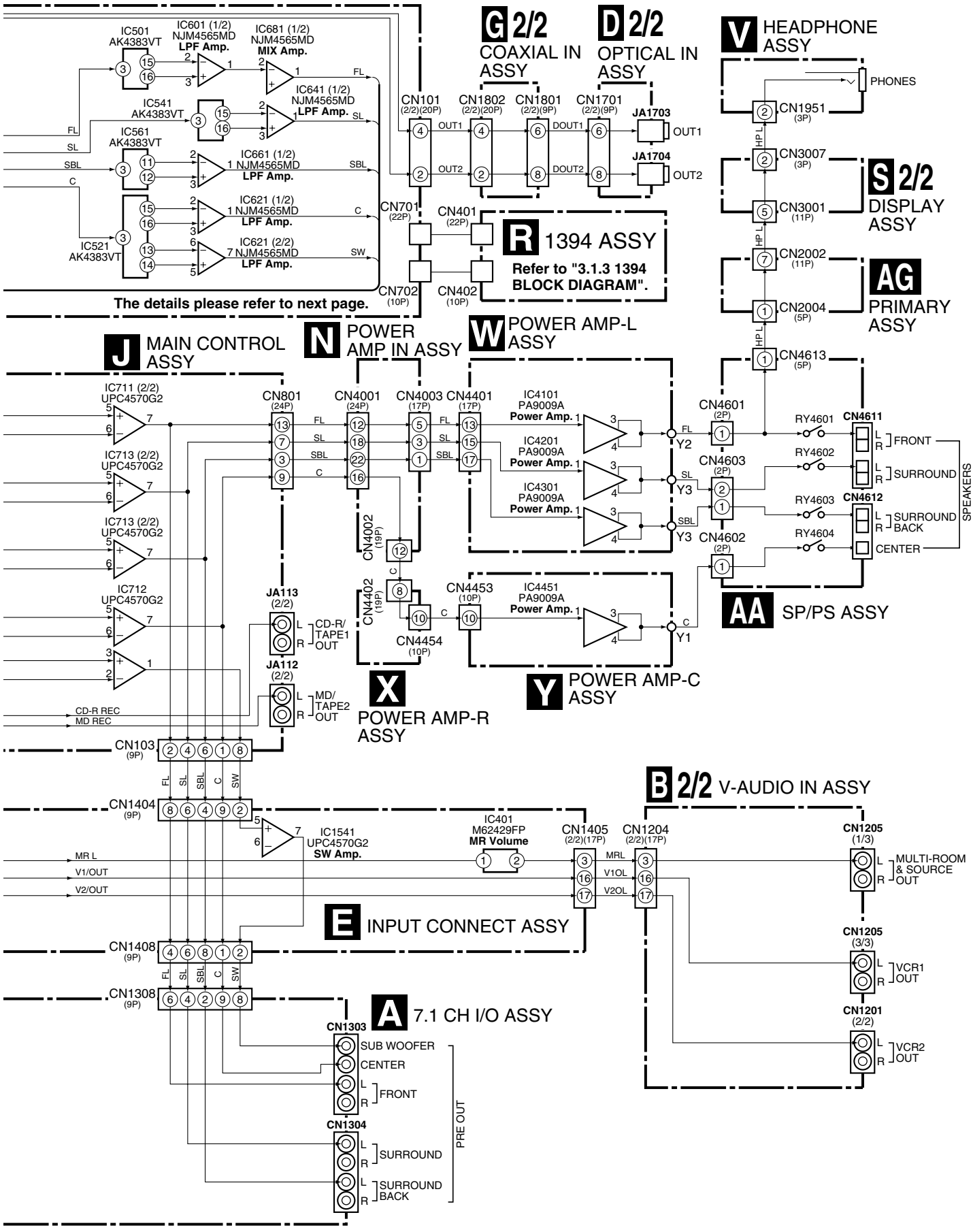
| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | MIC & F. OPT IN Assy | AWX8545 |
| NSP | 2 | VOLUME Assy | AWX8550 |
| NSP | 3 | MULTI JOG Assy | AWX8552 |
| NSP | 4 | FRONT IN Assy | AWX8549 |
| NSP | 5 | HEADPHONE Assy | AWX8554 |
| | 6 | DISPLAY Assy | AWX8559 |
| | 7 | MECHA SW Assy | AWX8553 |
| | 8 | 11P Flexible Cable (J2) | ADD7350 |
| | 9 | 4P Flexible Cable (J3) | ADD7351 |
| | 10 | 7P Flexible Cable (J4) | ADD7352 |
| | 11 | 3P Flexible Cable (J15) | ADD7371 |
| | 12 | Connector Assy (3P)(J1901) | ADE7084 |
| | 13 | Cord with Plug | ADH7022 |
| | 14 | Spacer 45A (3.5 x 10 x 27) | AEB7263 |
| | 15 | Door Stay 45S | AAH7097 |
| | 16 | Door Hinge L 45S | AMR7424 |
| | 17 | Door Hinge R 45S | AMR7425 |
| | 18 | Door 2011S | ANB7280 |
| | 19 | Rotary Knob L SL | AAA7017 |
| | 20 | FL Sheet 45W | AAK7956 |
| | 21 | Window AX5AI S | AAK8234 |
| | 22 | D. Sheet AX5A | AAK8239 |
| | 23 | Cushion Circle 56S | AED7087 |
| | 24 | Cushion 11 x 11 | AED7088 |
| | 25 | Panel Base 56S | AMB7884 |
| | 26 | Magnet 35 | AMF7007 |
| | 27 | Door Shaft 35 | AMR7295 |
| | 28 | F. Panel AX5A SHY | ANB7349 |
| | 29 | Earth Plate A | ANG7411 |
| | 30 | Earth Plate B | ANG7412 |
| | 31 | Damper Assy (200) | AXA7088 |
| | 32 | Pioneer Badge | VAM1124 |
| | 33 | Holder | VEC1355 |
| NSP | 34 | Styling Assy | • • • • • |
| | 35 | Nut | NK90FUC |
| | 36 | Screw | ABA7098 |
| | 37 | Screw | ABA7110 |
| | 38 | Screw | BPZ30P100FTC |
| | 39 | 32P Flexible Cable (J1) | ADD7349 |
| | 40 | Power Button 56S | AAD7734 |

# 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

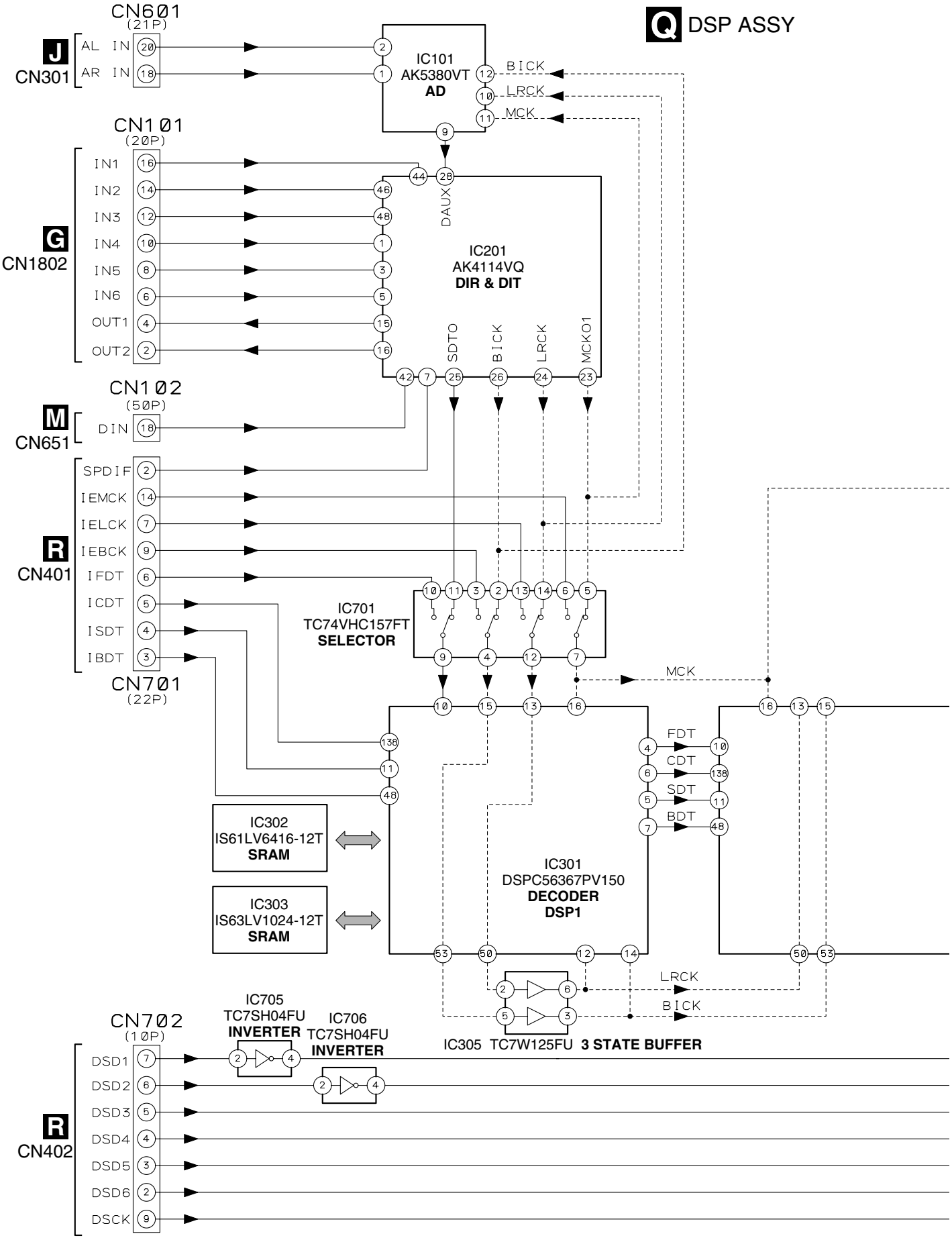
## 3.1 BLOCK DIAGRAM

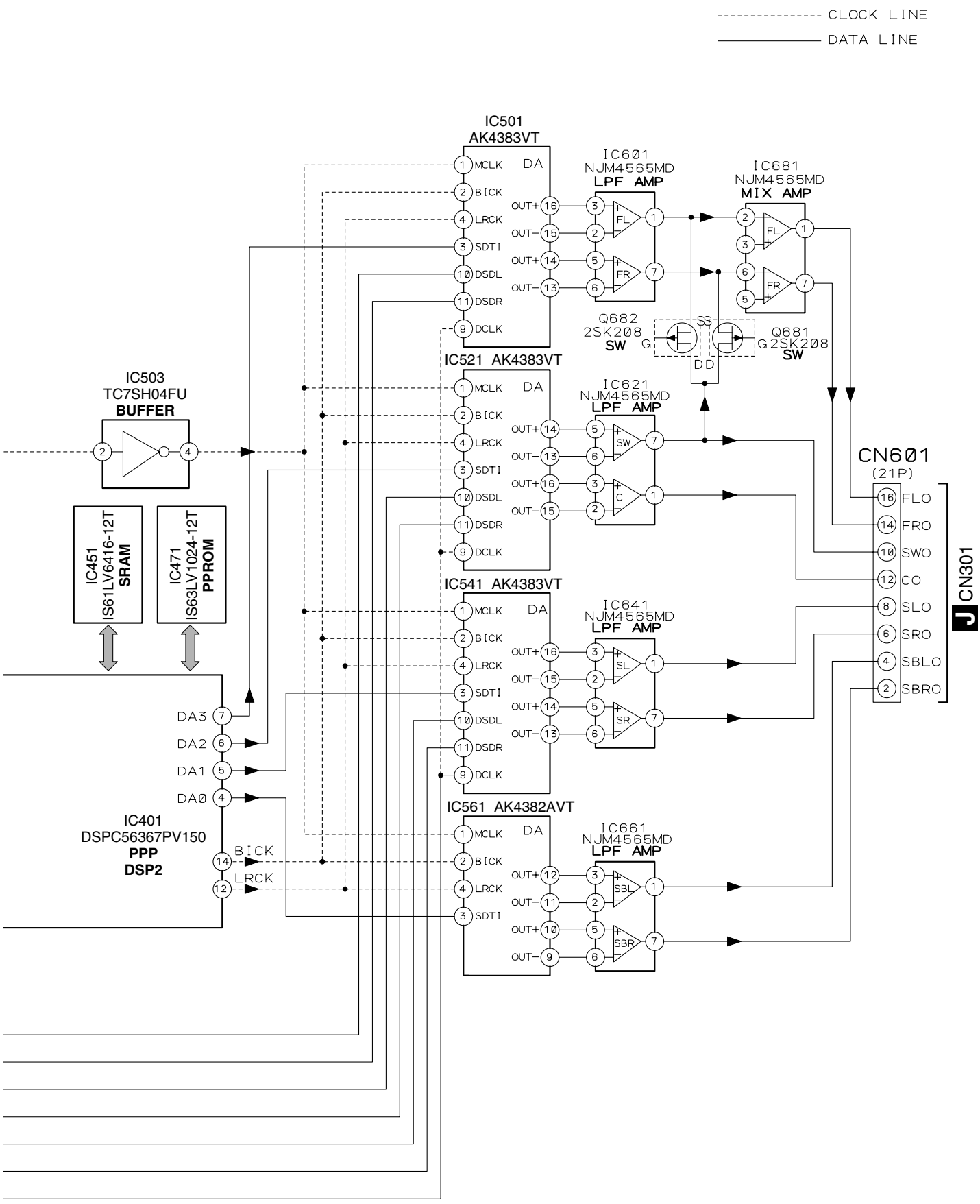
### 3.1.1 AUDIO BLOCK DIAGRAM




G 2/2 COAXIAL IN ASSY
D 2/2 OPTICAL IN ASSY
V HEADPHONE ASSY
IC501 AK4383VT
IC601 (1/2) NJM4565MD LPF Amp.
IC681 (1/2) NJM4565MD MIX Amp.
IC641 (1/2) NJM4565MD LPF Amp.
IC541 AK4383VT
IC561 AK4383VT
IC661 (1/2) NJM4565MD LPF Amp.
IC621 (1/2) NJM4565MD LPF Amp.
IC521 AK4383VT
IC621 (2/2) NJM4565MD LPF Amp.
FL
SL
SBL
C
SW
CN101 (2/2)(20P)
CN1802 (2/2)(20P)
CN1801 (2/2)(9P)
CN1701 (2/2)(9P)
JA1703
JA1704
OUT1
OUT2
DOUT1
DOUT2
PHONES
CN1951 (3P)
CN3007 (3P)
CN3001 (11P)
CN2002 (11P)
CN2004 (5P)
CN4613 (5P)
HP L
S 2/2 DISPLAY ASSY
AG PRIMARY ASSY
CN701 (22P)
CN702 (10P)
CN401 (22P)
CN402 (10P)
R 1394 ASSY
Refer to "3.1.3 1394 BLOCK DIAGRAM".
The details please refer to next page.
J MAIN CONTROL ASSY
N POWER AMP IN ASSY
W POWER AMP-L ASSY
IC711 (2/2) UPC4570G2
IC713 (2/2) UPC4570G2
IC712 UPC4570G2
CN801 (24P)
CN4001 (24P)
CN4003 (17P)
CN4401 (17P)
IC4101 PA9009A Power Amp.
IC4201 PA9009A Power Amp.
IC4301 PA9009A Power Amp.
CN4601 (2P)
CN4603 (2P)
CN4602 (2P)
RY4601
RY4602
RY4603
RY4604
CN4611
CN4612
FRONT
SURROUND
SURROUND BACK
CENTER
SPEAKERS
Y2
Y3
CN4002 (19P)
CN4402 (19P)
CN4453 (10P)
CN4454 (10P)
IC4451 PA9009A Power Amp.
Y1
AA SP/PS ASSY
JA113 (2/2)
JA112 (2/2)
CD-R/ TAPE1 OUT
MD/ TAPE2 OUT
CD-R REC
MD REC
X POWER AMP-R ASSY
Y POWER AMP-C ASSY
CN103 (9P)
CN1404 (9P)
CN1408 (9P)
CN1308 (9P)
B 2/2 V-AUDIO IN ASSY
IC1541 UPC4570G2 SW Amp.
IC401 M62429FP MR Volume
CN1405 (2/2)(17P)
CN1204 (2/2)(17P)
MR L
V1/OUT
V2/OUT
MRL
V1OL
V2OL
CN1205 (1/3)
CN1205 (3/3)
CN1201 (2/2)
MULTI-ROOM & SOURCE OUT
VCR1 OUT
VCR2 OUT
E INPUT CONNECT ASSY
A 7.1 CH I/O ASSY
CN1303
CN1304
SUB WOOFER
CENTER
FRONT
SURROUND
SURROUND BACK
PRE OUT

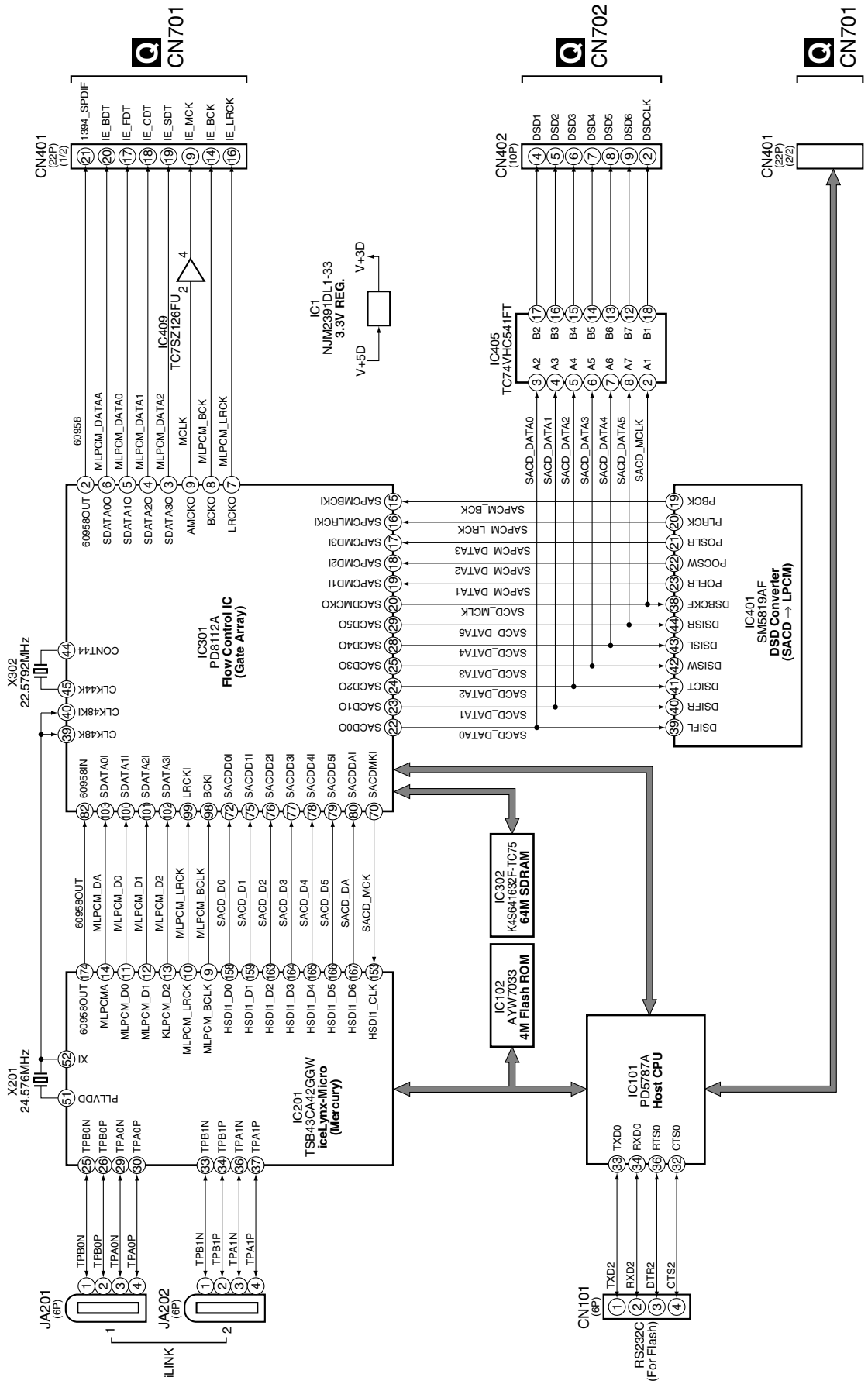
## 3.1.2 DSP BLOCK DIAGRAM



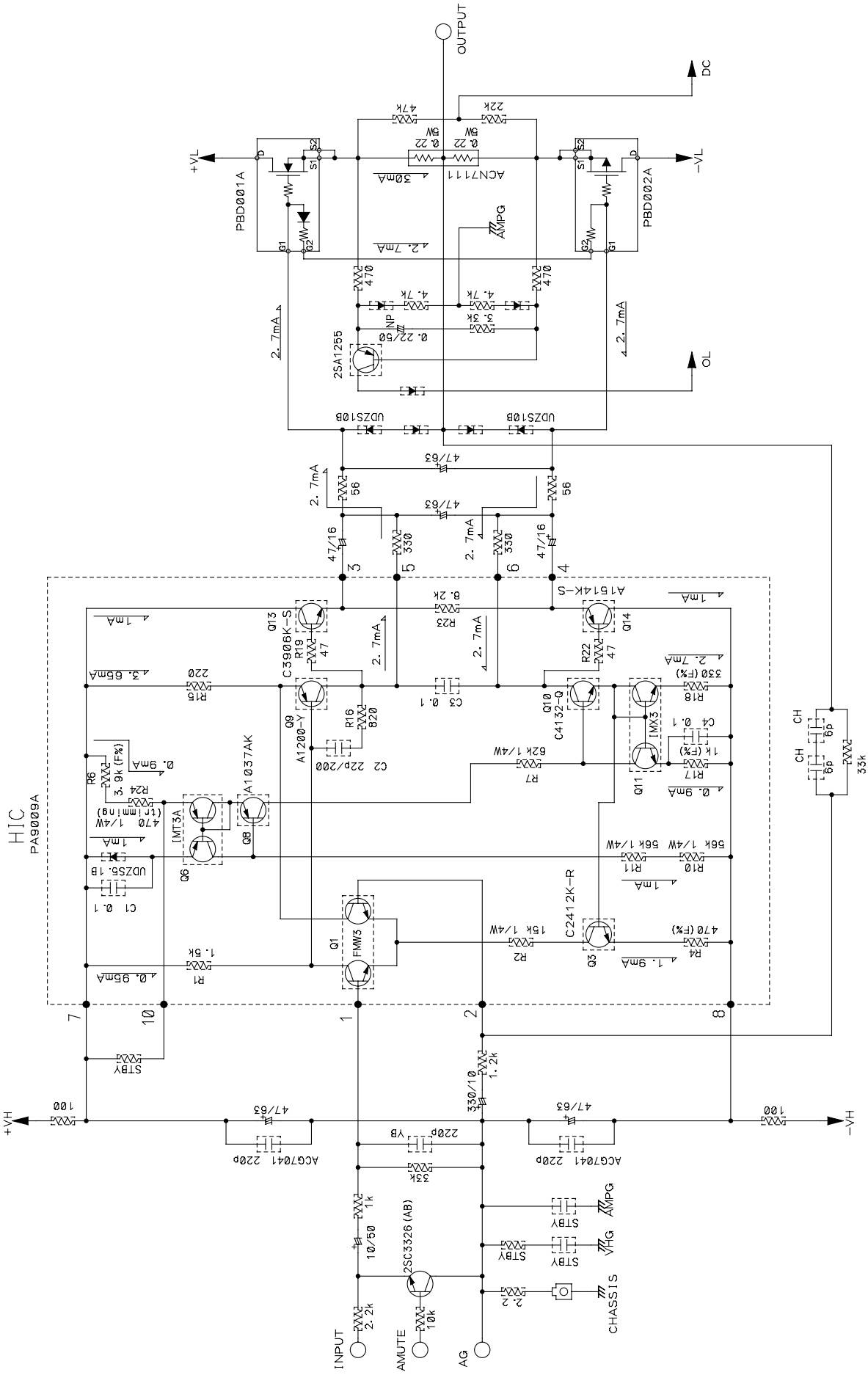

CLOCK LINE
DATA LINE
IC501
AK4383VT
IC601
NJM4565MD
LPF AMP
IC681
NJM4565MD
MIX AMP
Q682
2SK208
SW
Q681
2SK208
SW
IC521 AK4383VT
IC621
NJM4565MD
LPF AMP
IC503
TC7SH04FU
BUFFER
IC451
IS61LV6416-12T
SRAM
IC471
IS63LV1024-12T
PPROM
CN601
(21P)
CN301
FLO
FRO
SWO
CO
SLO
SRO
SBLO
SBRO
IC541 AK4383VT
IC641
NJM4565MD
LPF AMP
DA3
DA2
DA1
DA0
IC401
DSPC56367PV150
PPP
DSP2
BICK
LRCK
IC561 AK4382AVT
IC661
NJM4565MD
LPF AMP
MCLK
BICK
LRCK
SDTI
DSDL
DSDR
DCLK
DA
OUT+
OUT−
FL
FR
SW
C
SL
SR
SBL
SBR
SS
DD
G

## 3.1.3 1394 BLOCK DIAGRAM

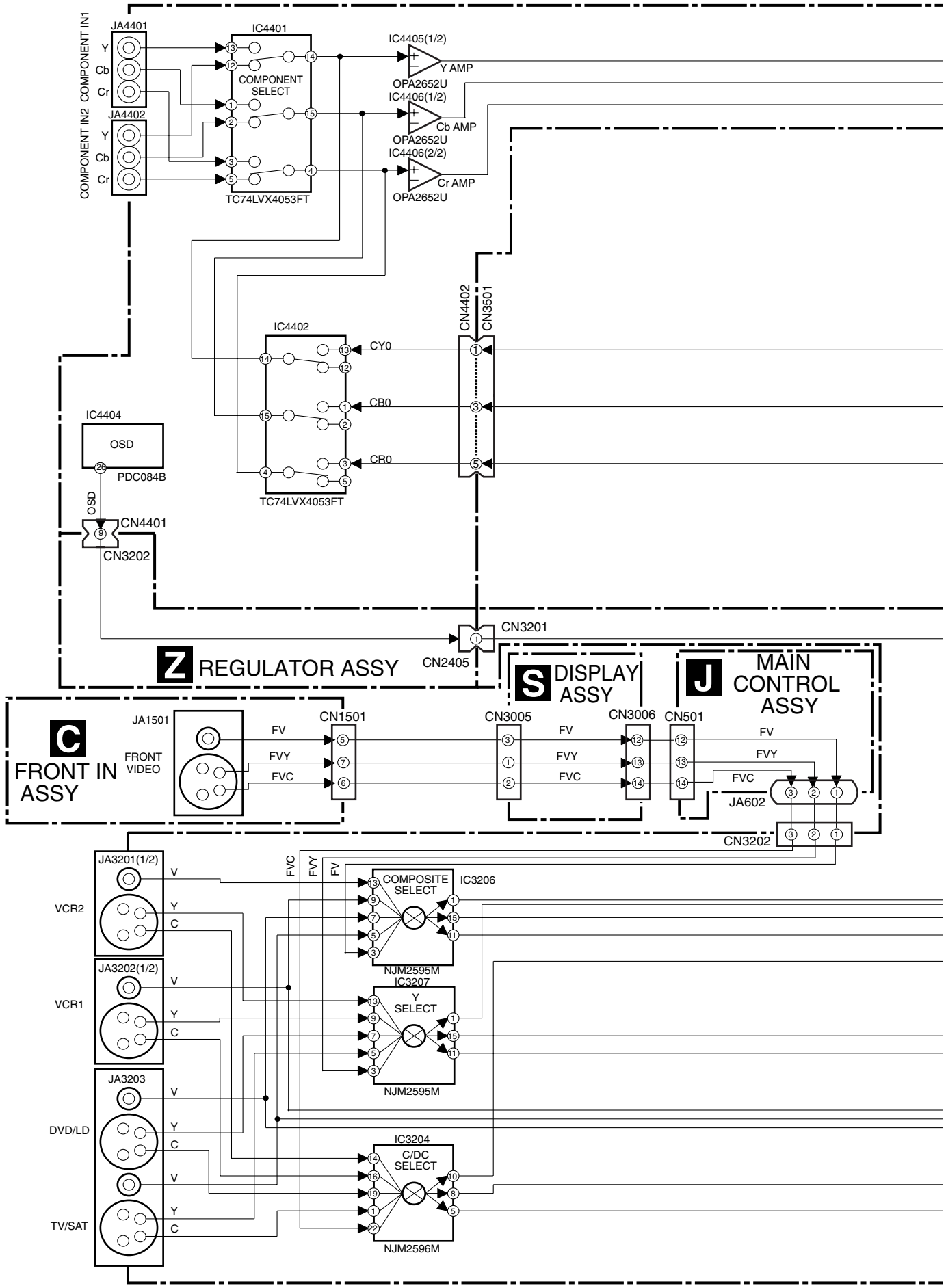
**R** 1394 ASSY

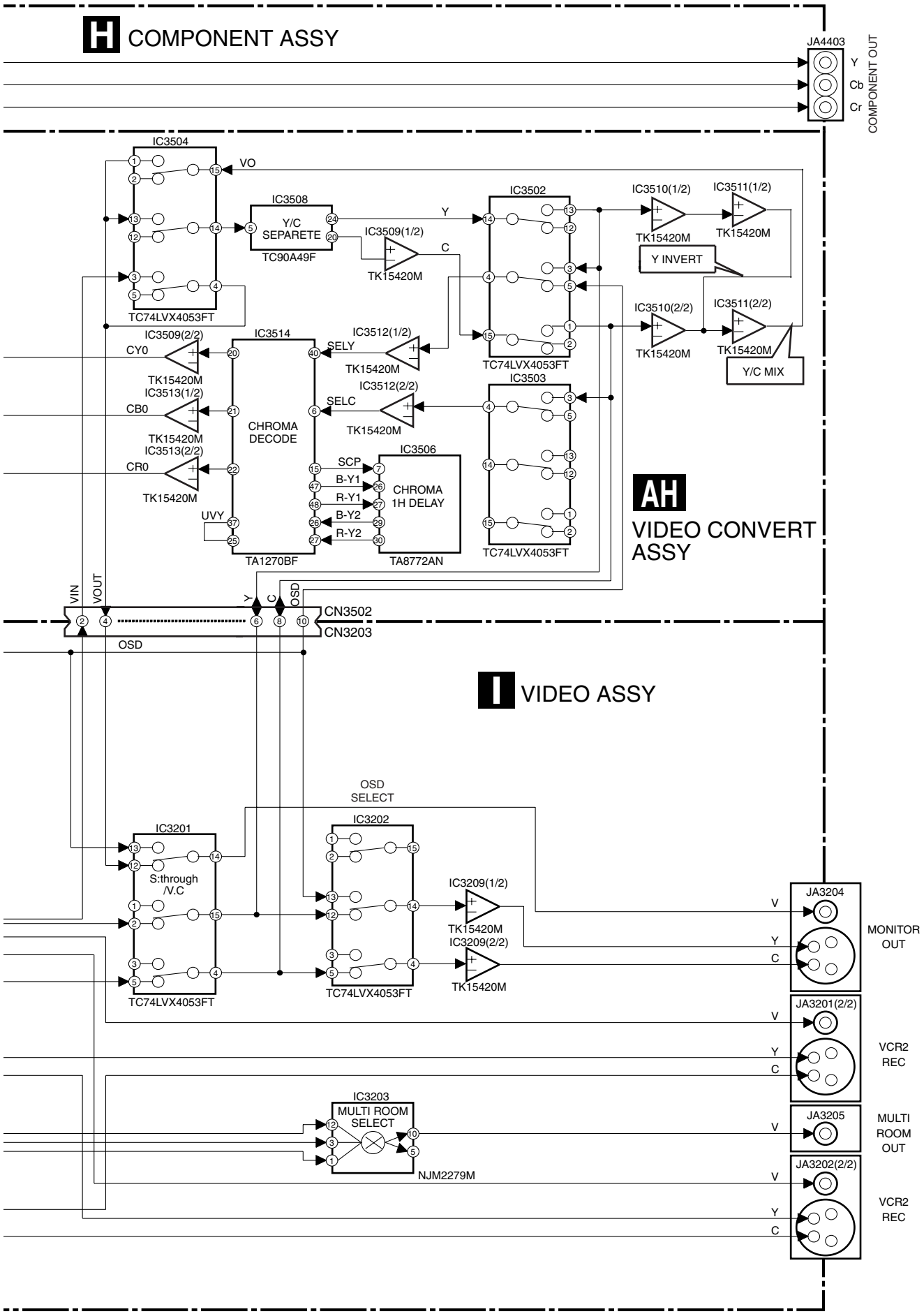


## 3.1.4 POWER AMP BLOCK DIAGRAM

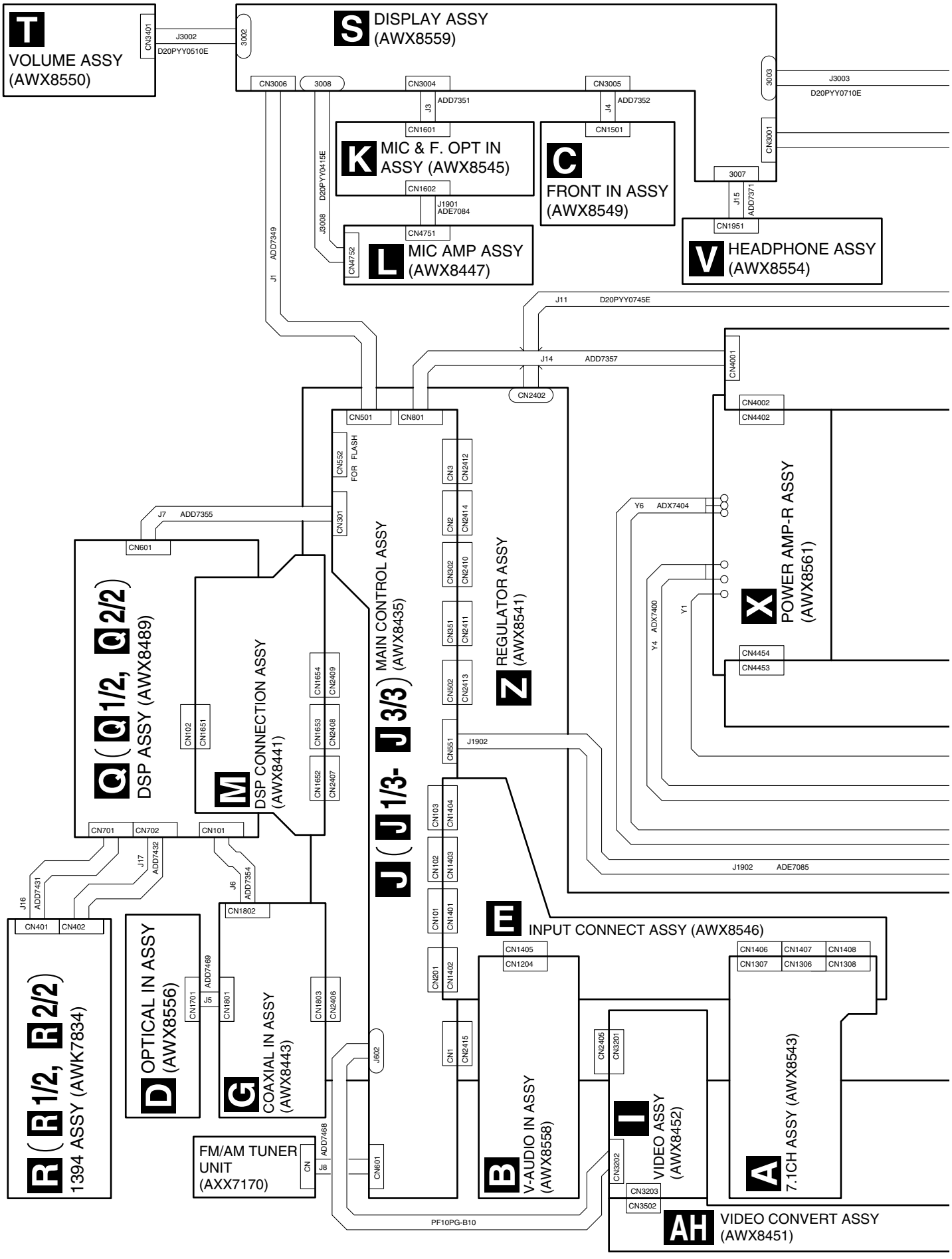


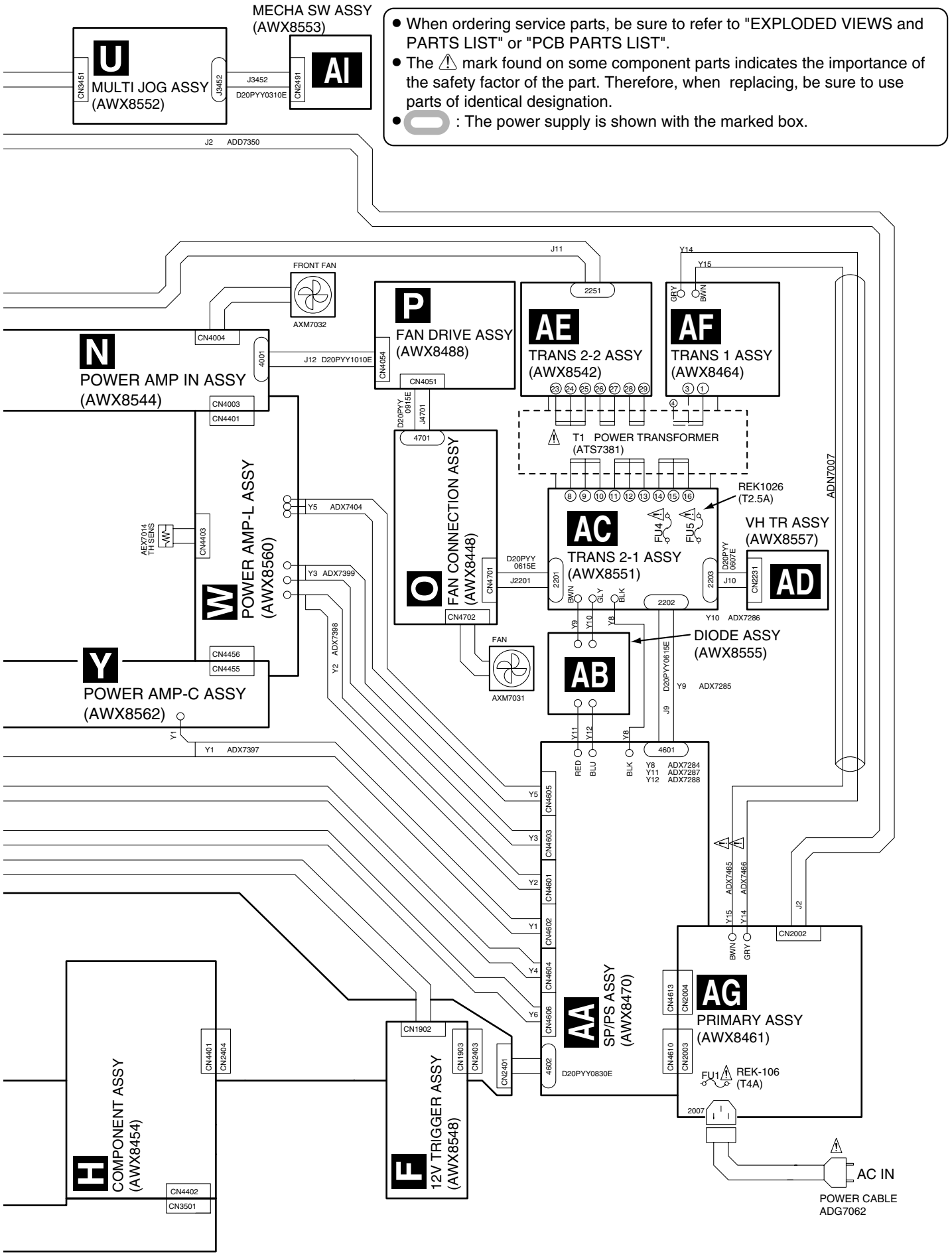
## 3.1.5 VIDEO BLOCK DIAGRAM



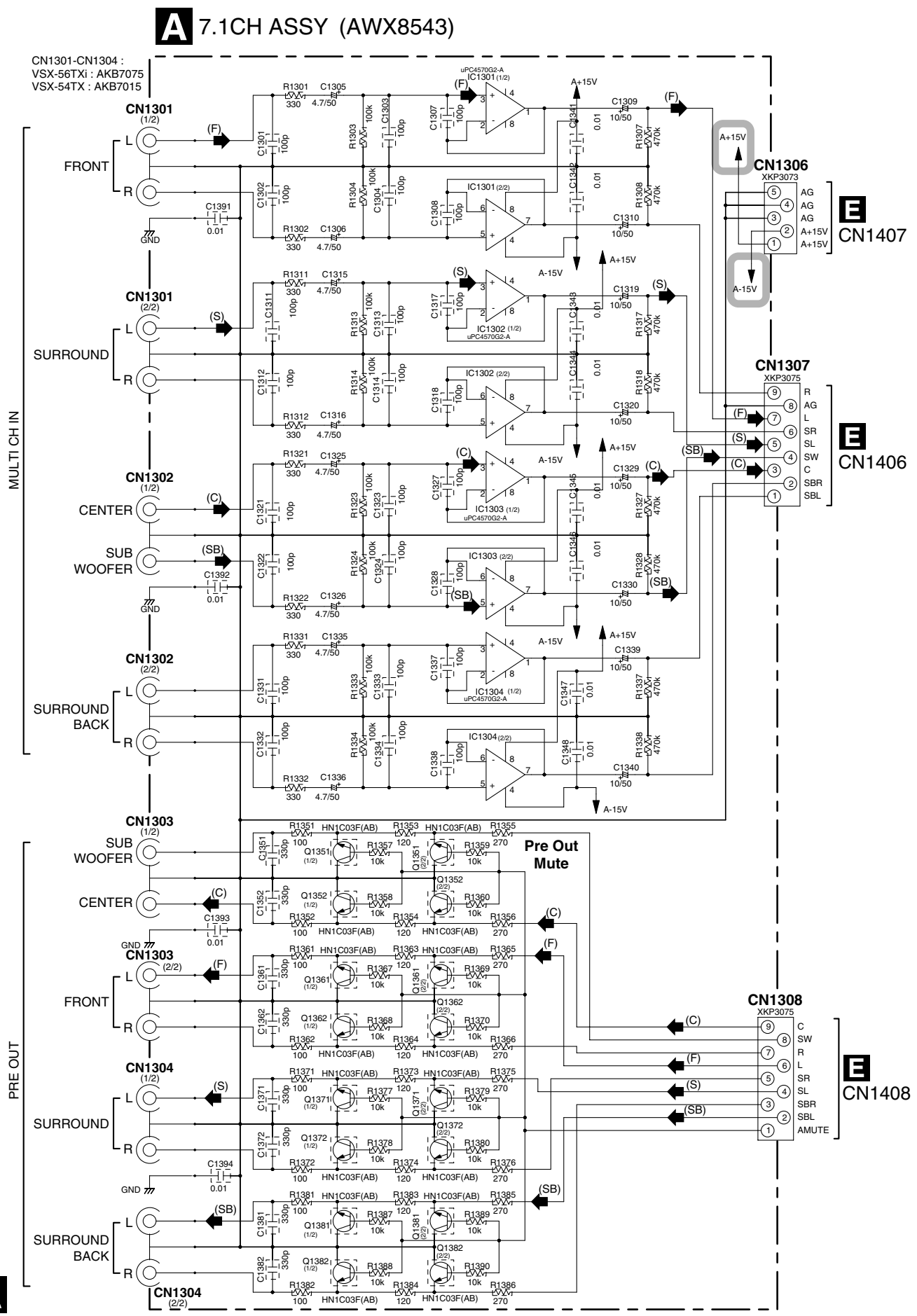

H COMPONENT ASSY
JA4403
Y
Cb
Cr
COMPONENT OUT
IC3504
VO
IC3508
Y/C SEPARETE
TC90A49F
IC3509(1/2)
TK15420M
Y
C
IC3502
IC3510(1/2)
IC3511(1/2)
TK15420M
TK15420M
Y INVERT
IC3510(2/2)
IC3511(2/2)
TK15420M
TK15420M
Y/C MIX
TC74LVX4053FT
IC3509(2/2)
CY0
TK15420M
IC3513(1/2)
CB0
TK15420M
IC3513(2/2)
CR0
TK15420M
IC3514
CHROMA DECODE
UVY
TA1270BF
IC3512(1/2)
SELY
TK15420M
IC3512(2/2)
SELC
TK15420M
IC3503
TC74LVX4053FT
IC3506
SCP
B-Y1
R-Y1
B-Y2
R-Y2
CHROMA 1H DELAY
TA8772AN
AH
VIDEO CONVERT ASSY
VIN
VOUT
Y
C
OSD
CN3502
CN3203
OSD
I VIDEO ASSY
OSD SELECT
IC3201
S:through /V.C
TC74LVX4053FT
IC3202
TC74LVX4053FT
IC3209(1/2)
TK15420M
IC3209(2/2)
TK15420M
JA3204
V
Y
C
MONITOR OUT
JA3201(2/2)
V
Y
C
VCR2 REC
IC3203
MULTI ROOM SELECT
NJM2279M
JA3205
V
MULTI ROOM OUT
JA3202(2/2)
V
Y
C
VCR2 REC

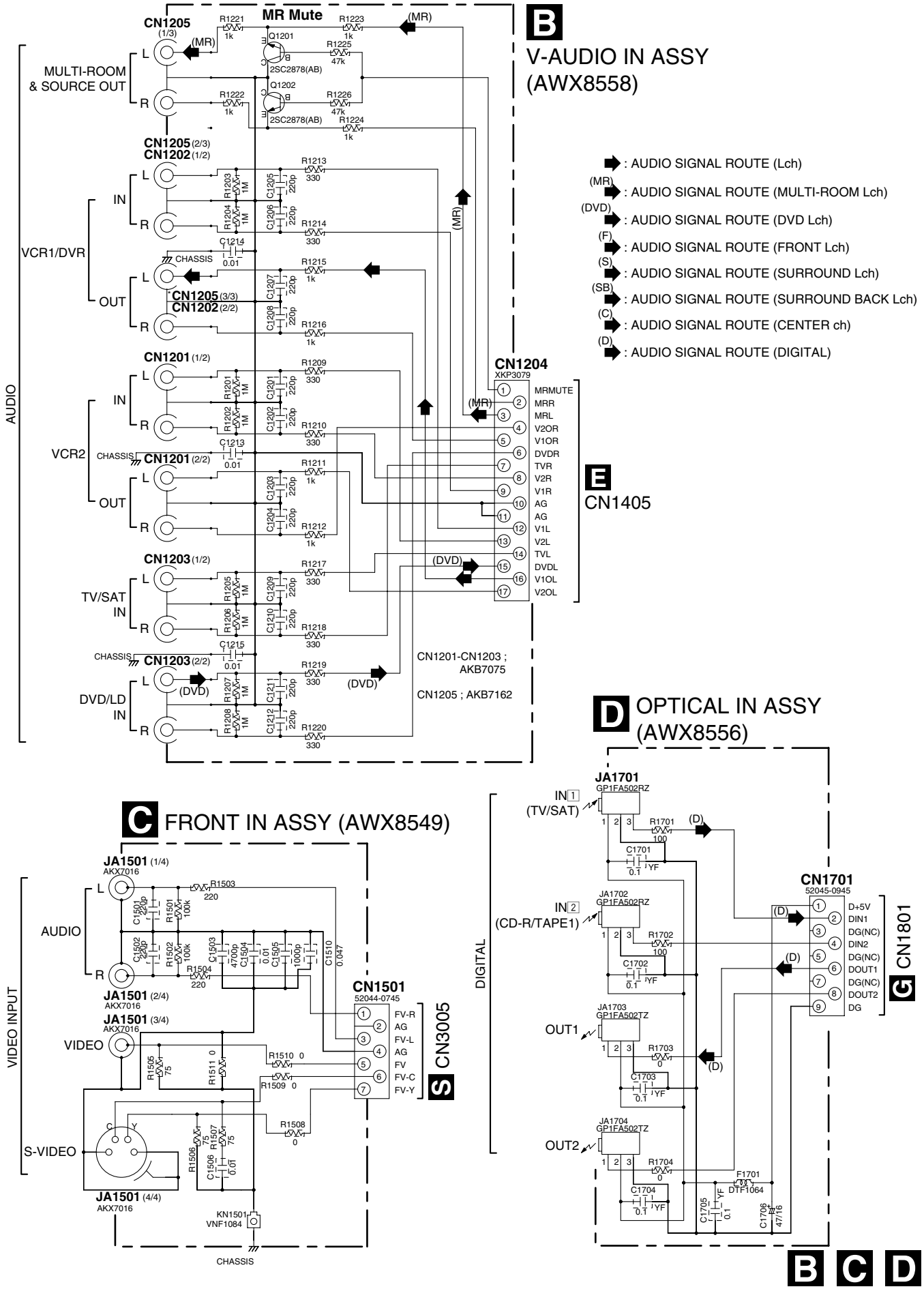
# 3.2 OVERALL WIRING DIAGRAM



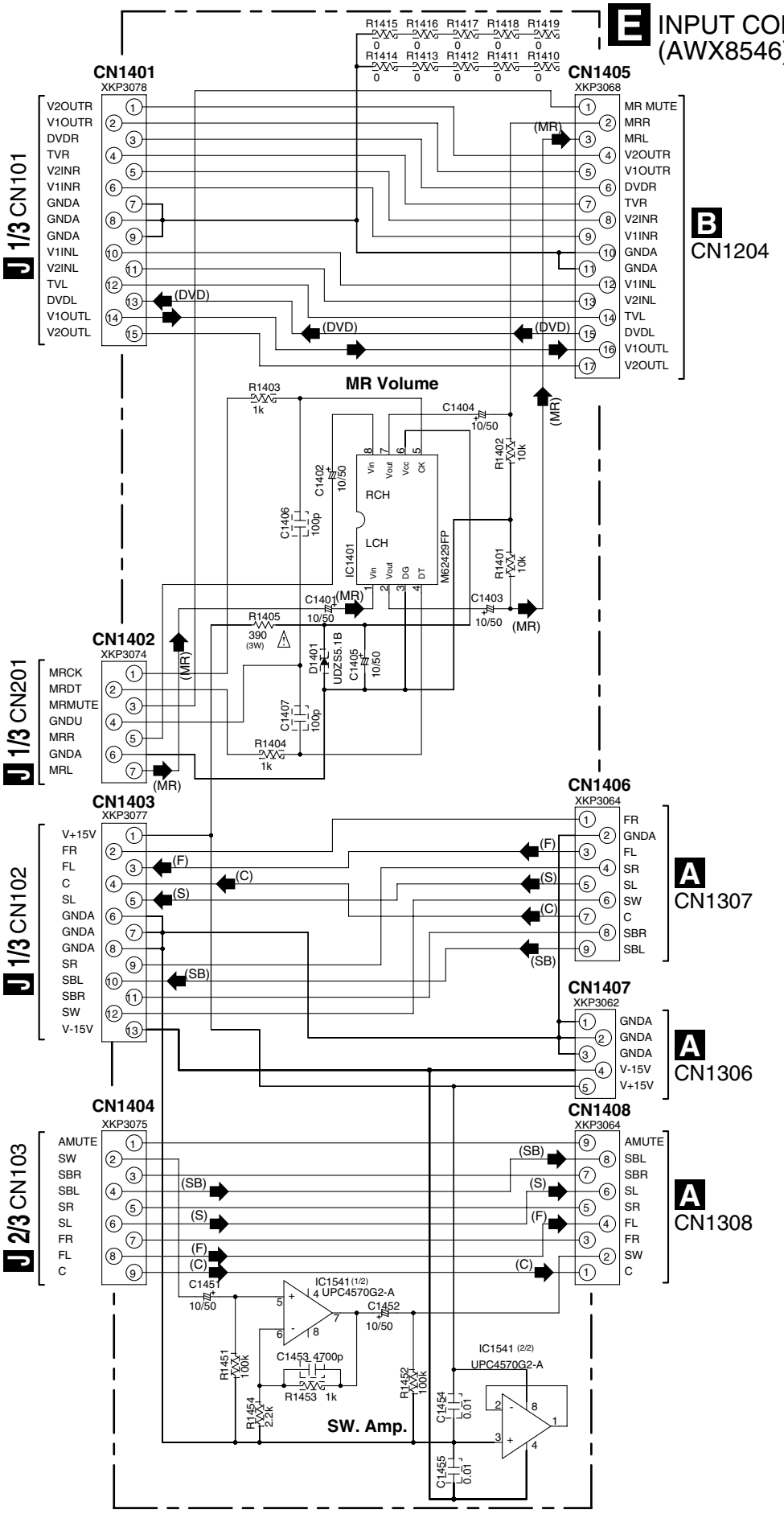

MECHA SW ASSY
(AWX8553)
U
MULTI JOG ASSY
(AWX8552)
CN3451
J3452
D20PYY0310E
CN2491
AI
When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
: The power supply is shown with the marked box.
J2 ADD7350
J11
FRONT FAN
AXM7032
CN4004
4001
J12 D20PYY1010E
CN4054
P
FAN DRIVE ASSY
(AWX8488)
CN4051
D20PY 0915E
J4701
4701
2251
AE
TRANS 2-2 ASSY
(AWX8542)
23 24 25 26 27 28 29
Y14
Y15
GRY
BWN
AF
TRANS 1 ASSY
(AWX8464)
3 1
4
T1 POWER TRANSFORMER
(ATS7381)
ADN7007
N
POWER AMP IN ASSY
(AWX8544)
CN4003
CN4401
8 9 10 11 12 13 14 15 16
REK1026
(T2.5A)
FU4
FU5
AC
TRANS 2-1 ASSY
(AWX8551)
VH TR ASSY
(AWX8557)
AD
D20PYY 0607E
J10
CN2231
2203
2201
D20PYY 0615E
J2201
CN4701
BWN
GLY
BLK
2202
Y10 ADX7286
AEX7014
TH SENS
CN4403
W
POWER AMP-L ASSY
(AWX8560)
Y5 ADX7404
Y3 ADX7399
Y2 ADX7398
O
FAN CONNECTION ASSY
(AWX8448)
CN4702
FAN
AXM7031
AB
DIODE ASSY
(AWX8555)
Y9 Y10 Y8
D20PYY0615E
J9
Y9 ADX7285
Y
POWER AMP-C ASSY
(AWX8562)
CN4456
CN4455
Y1
Y1 ADX7397
Y11 Y12 Y8
4601
RED BLU BLK
Y8 ADX7284
Y11 ADX7287
Y12 ADX7288
Y5
Y3
Y2
Y1
Y4
Y6
CN4605
CN4603
CN4601
CN4602
CN4604
CN4606
AA
SP/PS ASSY
(AWX8470)
4602
D20PYY0830E
ADX7465
ADX7466
Y15
Y14
J2
CN2002
BWN
GRY
CN4613
CN2004
CN4610
CN2003
AG
PRIMARY ASSY
(AWX8461)
FU1 REK-106
(T4A)
2007
AC IN
POWER CABLE
ADG7062
H
COMPONENT ASSY
(AWX8454)
CN4401
CN2404
CN4402
CN3501
CN1902
CN1903
CN2403
CN2401
F
12V TRIGGER ASSY
(AWX8548)

# 3.3 7.1 CH I/O, V-AUDIO IN, FRONT IN and OPTICAL IN ASSYS

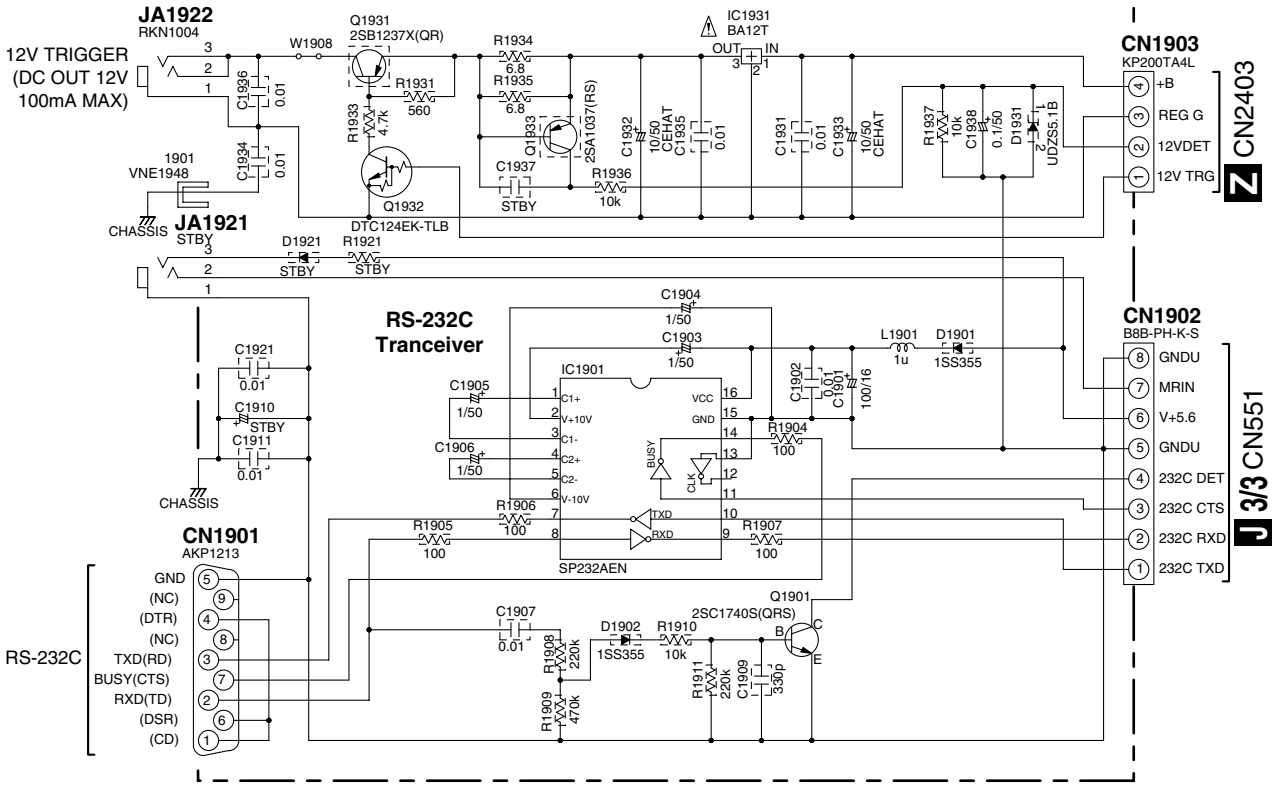



B
V-AUDIO IN ASSY
(AWX8558)
: AUDIO SIGNAL ROUTE (Lch)
(MR) : AUDIO SIGNAL ROUTE (MULTI-ROOM Lch)
(DVD) : AUDIO SIGNAL ROUTE (DVD Lch)
(F) : AUDIO SIGNAL ROUTE (FRONT Lch)
(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)
(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)
(C) : AUDIO SIGNAL ROUTE (CENTER ch)
(D) : AUDIO SIGNAL ROUTE (DIGITAL)
MR Mute
CN1205 (1/3)
MULTI-ROOM & SOURCE OUT
CN1205 (2/3)
CN1202 (1/2)
VCR1/DVR
CN1205 (3/3)
CN1202 (2/2)
CN1201 (1/2)
VCR2
CN1201 (2/2)
CN1203 (1/2)
TV/SAT IN
CN1203 (2/2)
DVD/LD IN
AUDIO
CHASSIS
Q1201
Q1202
2SC2878(AB)
CN1204
XKP3079
MRMUTE
MRR
MRL
V2OR
V1OR
DVDR
TVR
V2R
V1R
AG
AG
V1L
V2L
TVL
DVDL
V1OL
V2OL
E
CN1405
CN1201-CN1203 ; AKB7075
CN1205 ; AKB7162
C FRONT IN ASSY (AWX8549)
JA1501 (1/4)
AKX7016
JA1501 (2/4)
JA1501 (3/4)
JA1501 (4/4)
VIDEO INPUT
AUDIO
VIDEO
S-VIDEO
CN1501
52044-0745
FV-R
AG
FV-L
AG
FV
FV-C
FV-Y
S
CN3005
KN1501
VNF1084
D OPTICAL IN ASSY
(AWX8556)
JA1701
GP1FA502RZ
IN 1 (TV/SAT)
JA1702
GP1FA502RZ
IN 2 (CD-R/TAPE1)
JA1703
GP1FA502TZ
OUT1
JA1704
GP1FA502TZ
OUT2
DIGITAL
CN1701
52045-0945
D+5V
DIN1
DG(NC)
DIN2
DG(NC)
DOUT1
DG(NC)
DOUT2
DG
G
CN1801
F1701
DTF1064
B C D

# 3.4 INPUT CONNECT and 12V TRIGGER ASSYS



# F 12V TRIGGER ASSY (AWX8548)




: AUDIO SIGNAL ROUTE (Lch)

(MR) : AUDIO SIGNAL ROUTE (MULTI-ROOM Lch)

(DVD) : AUDIO SIGNAL ROUTE (DVD Lch)

(F) : AUDIO SIGNAL ROUTE (FRONT Lch)

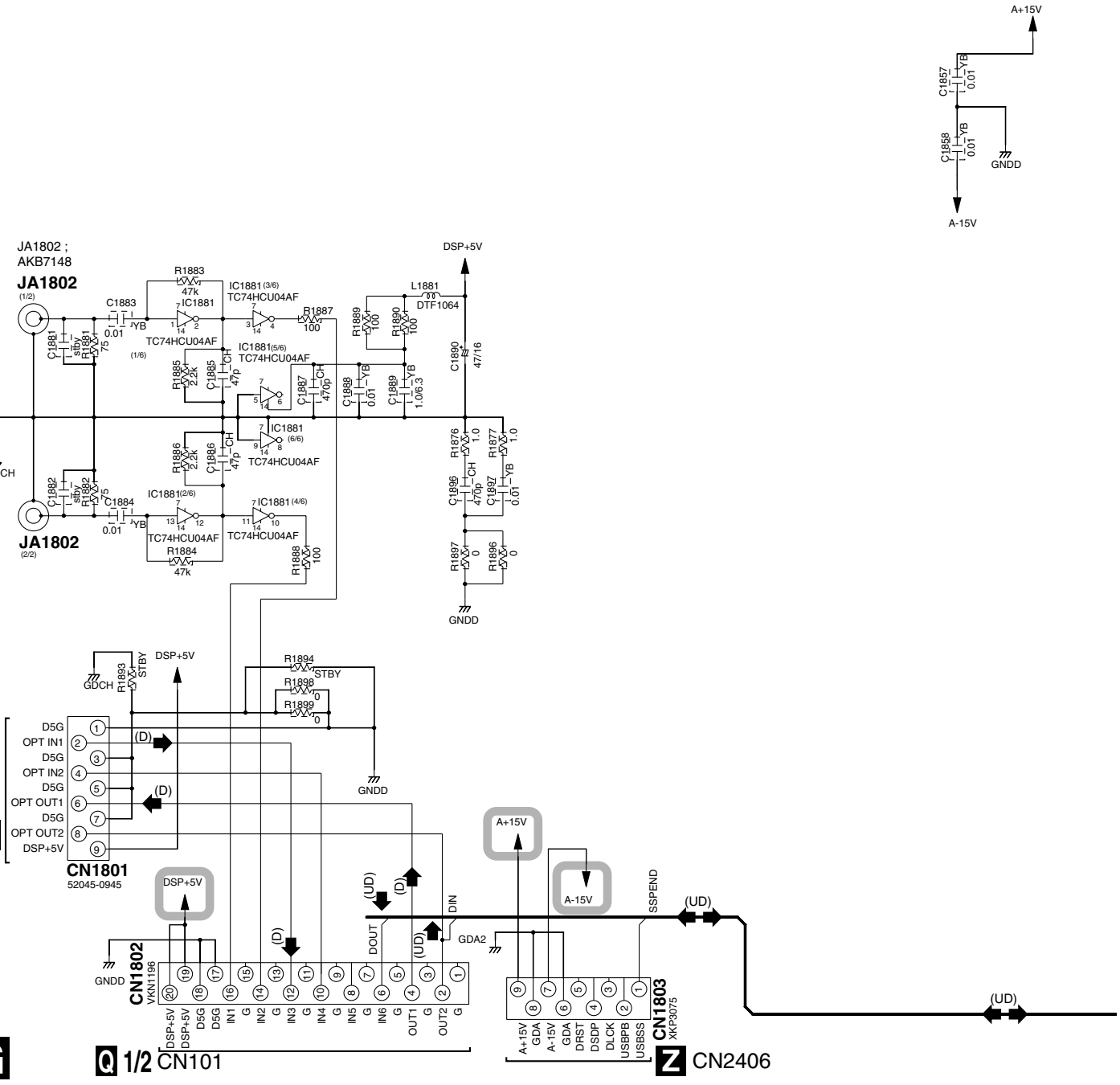
(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)

(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)

(C) : AUDIO SIGNAL ROUTE (CENTER ch)

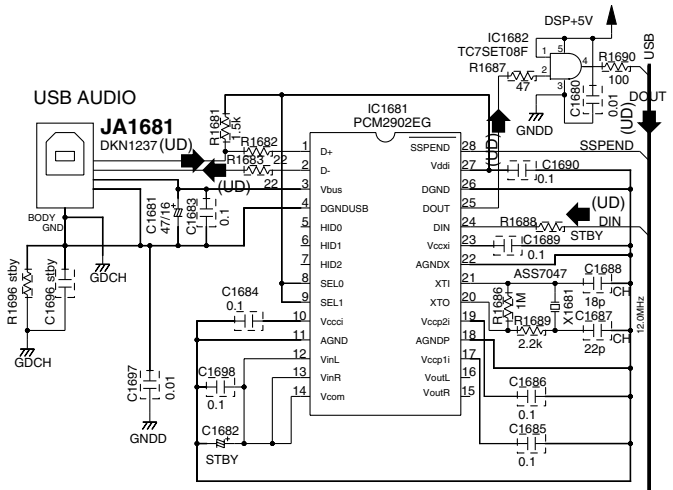
# 3.5 COAXIAL IN ASSY

## G COAXIAL IN ASSY (AWX8443)



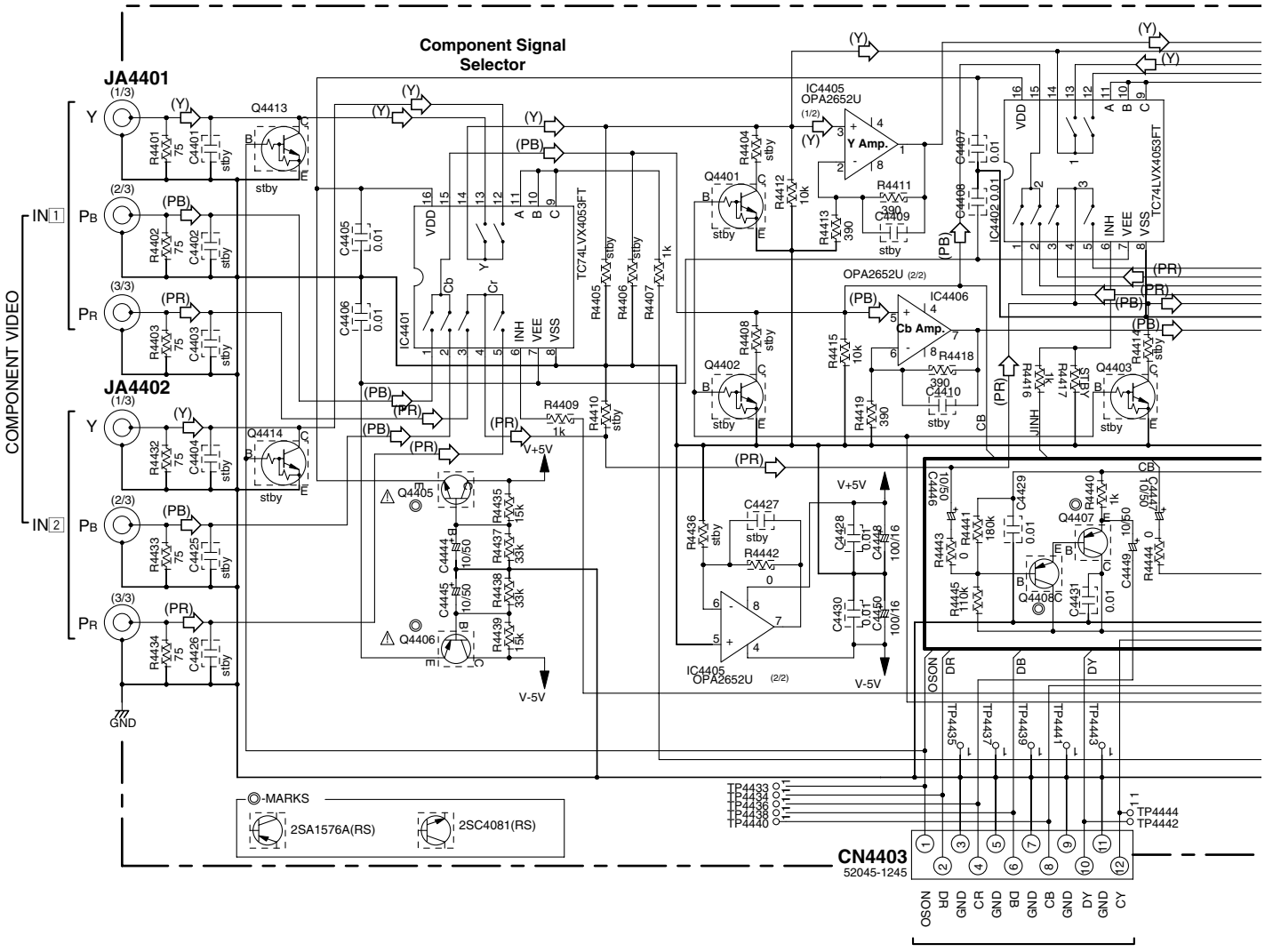
(D) : AUDIO SIGNAL ROUTE (DIGITAL)

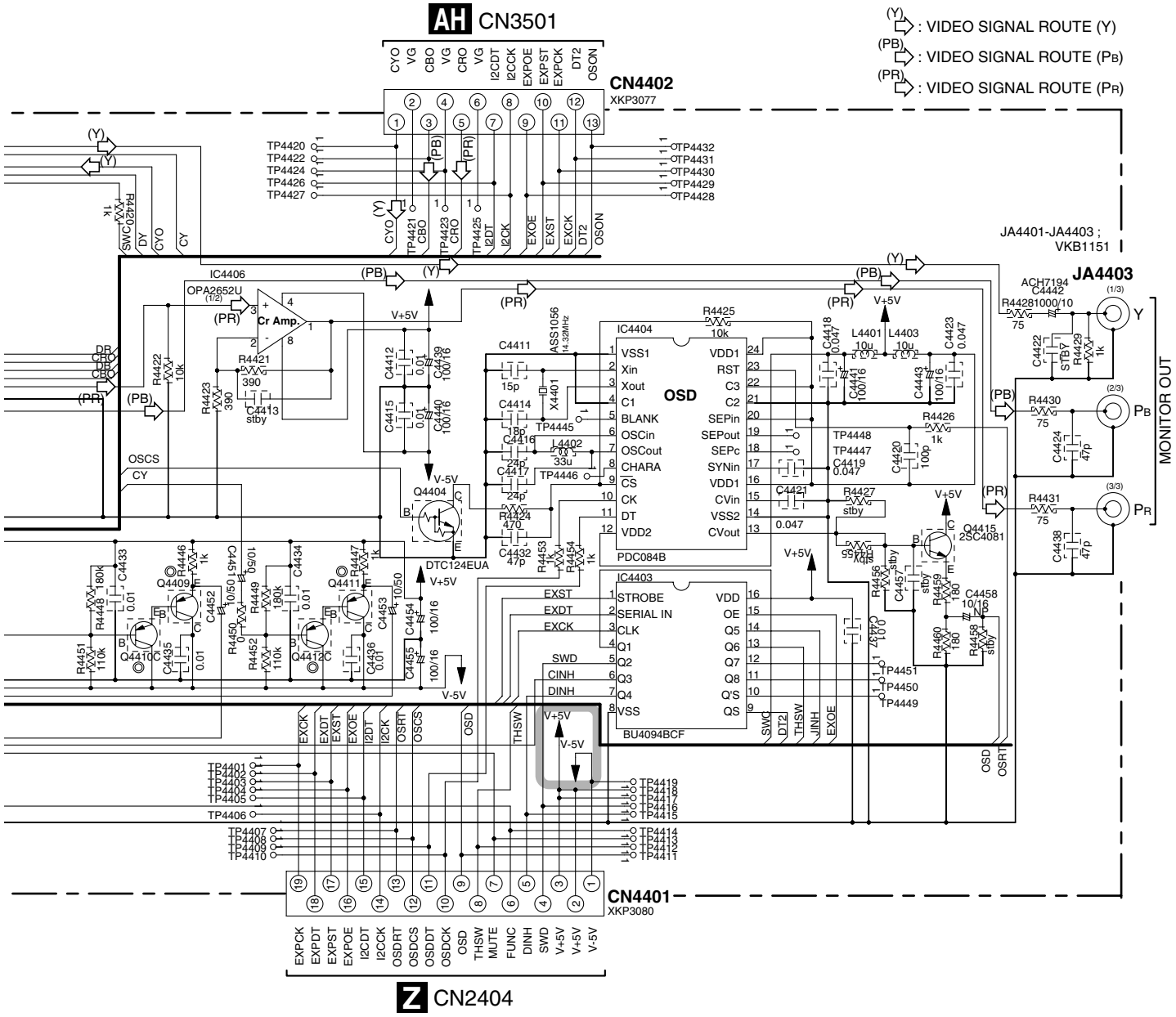
(UD) : AUDIO SIGNAL ROUTE (USB DIGITAL)



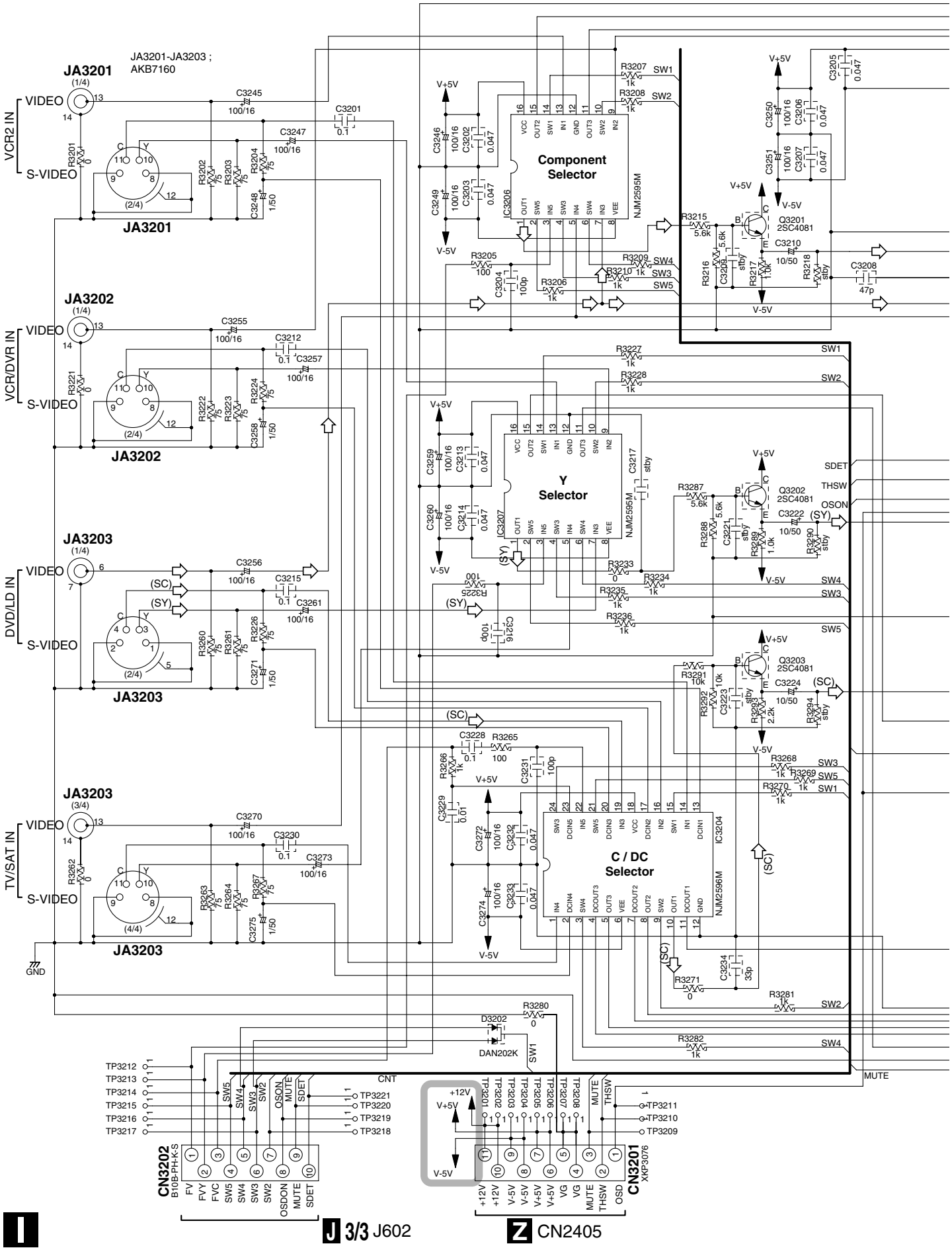
# 3.6 COMPONENT ASSY

## H COMPONENT ASSY (AWX8454)

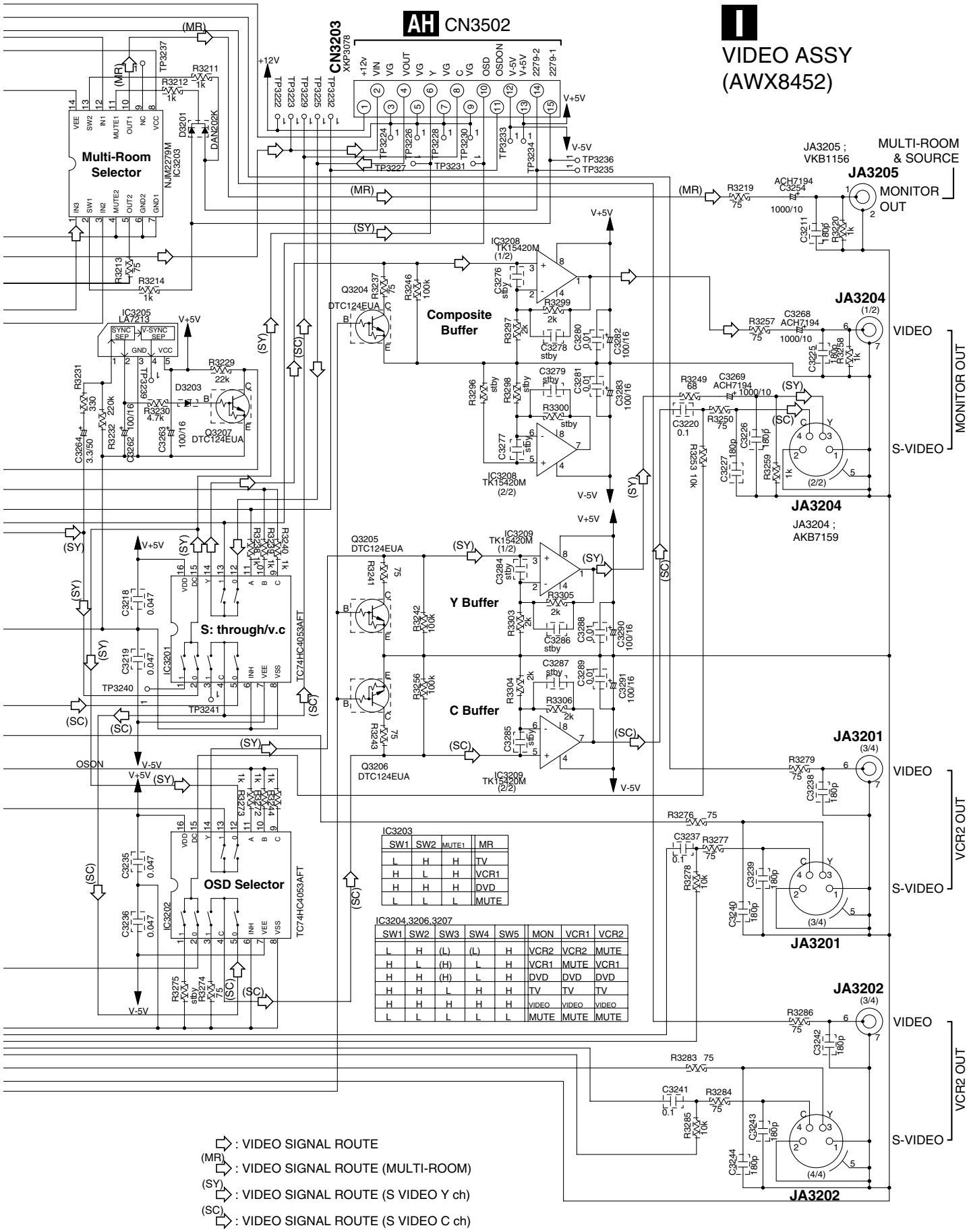



AH CN3501
CN4402
XKP3077
(Y) : VIDEO SIGNAL ROUTE (Y)
(PB) : VIDEO SIGNAL ROUTE (PB)
(PR) : VIDEO SIGNAL ROUTE (PR)
JA4401-JA4403 ; VKB1151
JA4403
MONITOR OUT
IC4406
OPA2652U
Cr Amp.
IC4404
OSD
PDC084B
IC4403
BU4094BCF
DTC124EUA
CN4401
XKP3080
Z CN2404

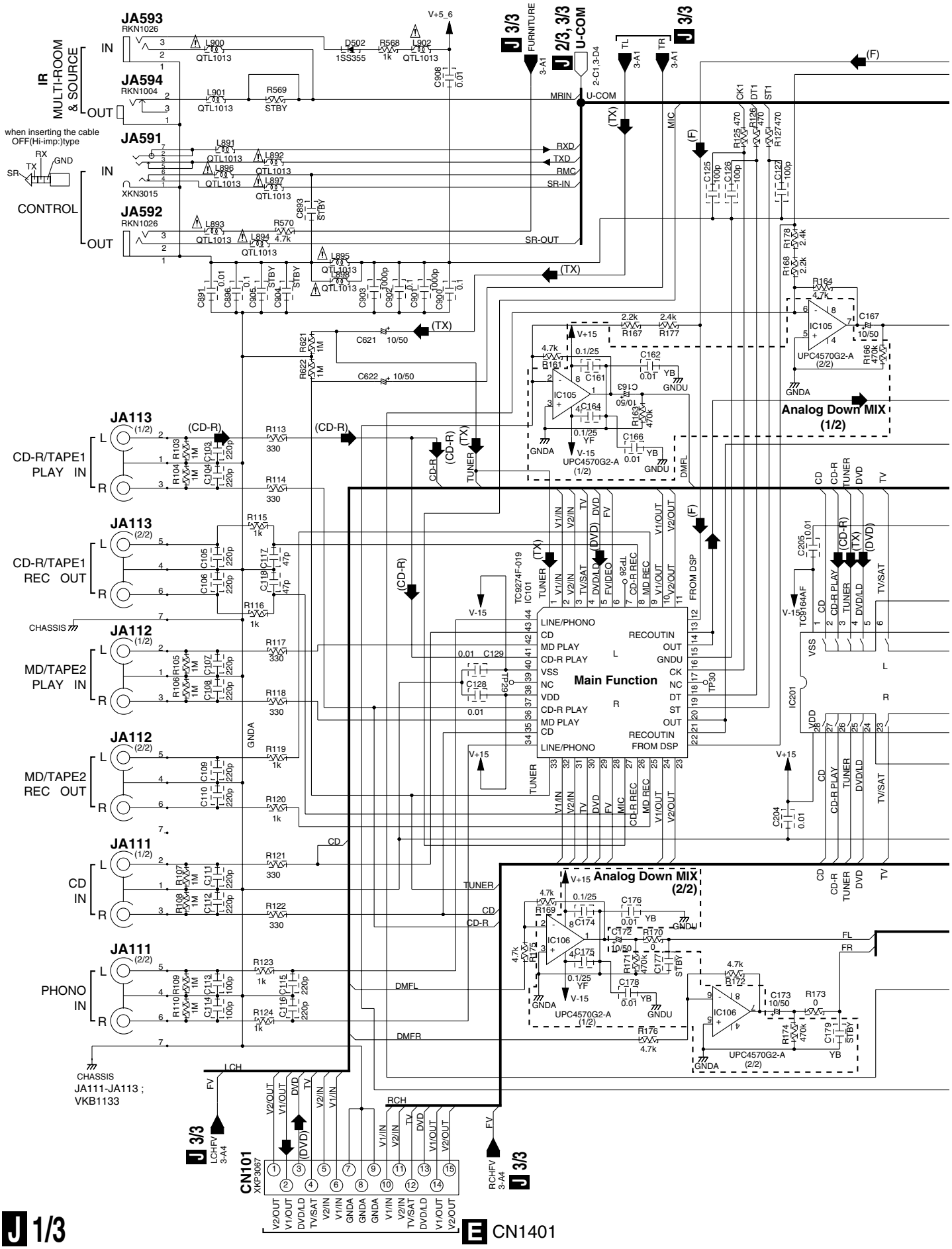
# 3.7 VIDEO ASSY



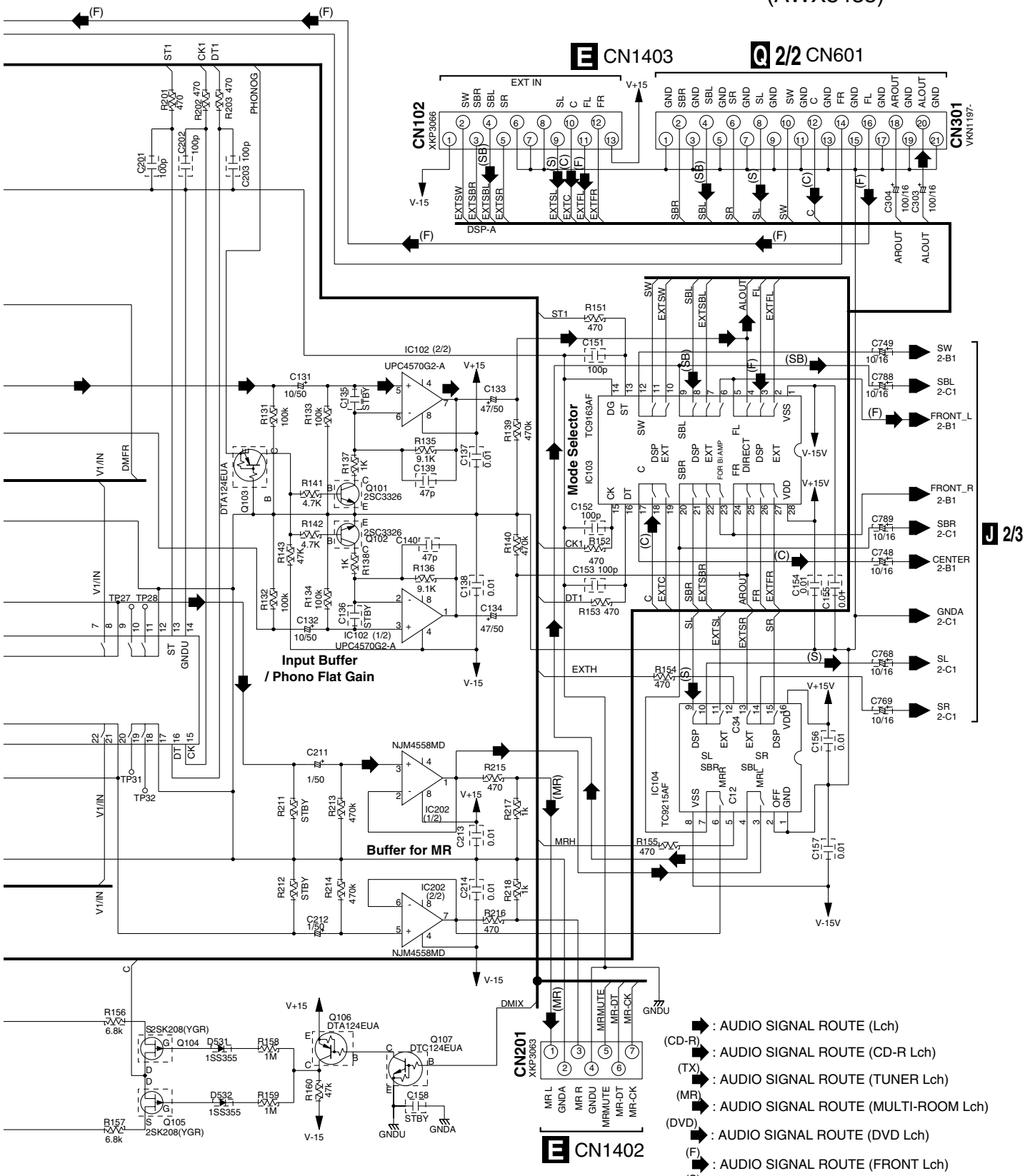
# I VIDEO ASSY (AWX8452)



# 3.8 MAIN CONTROL ASSY (1/3)



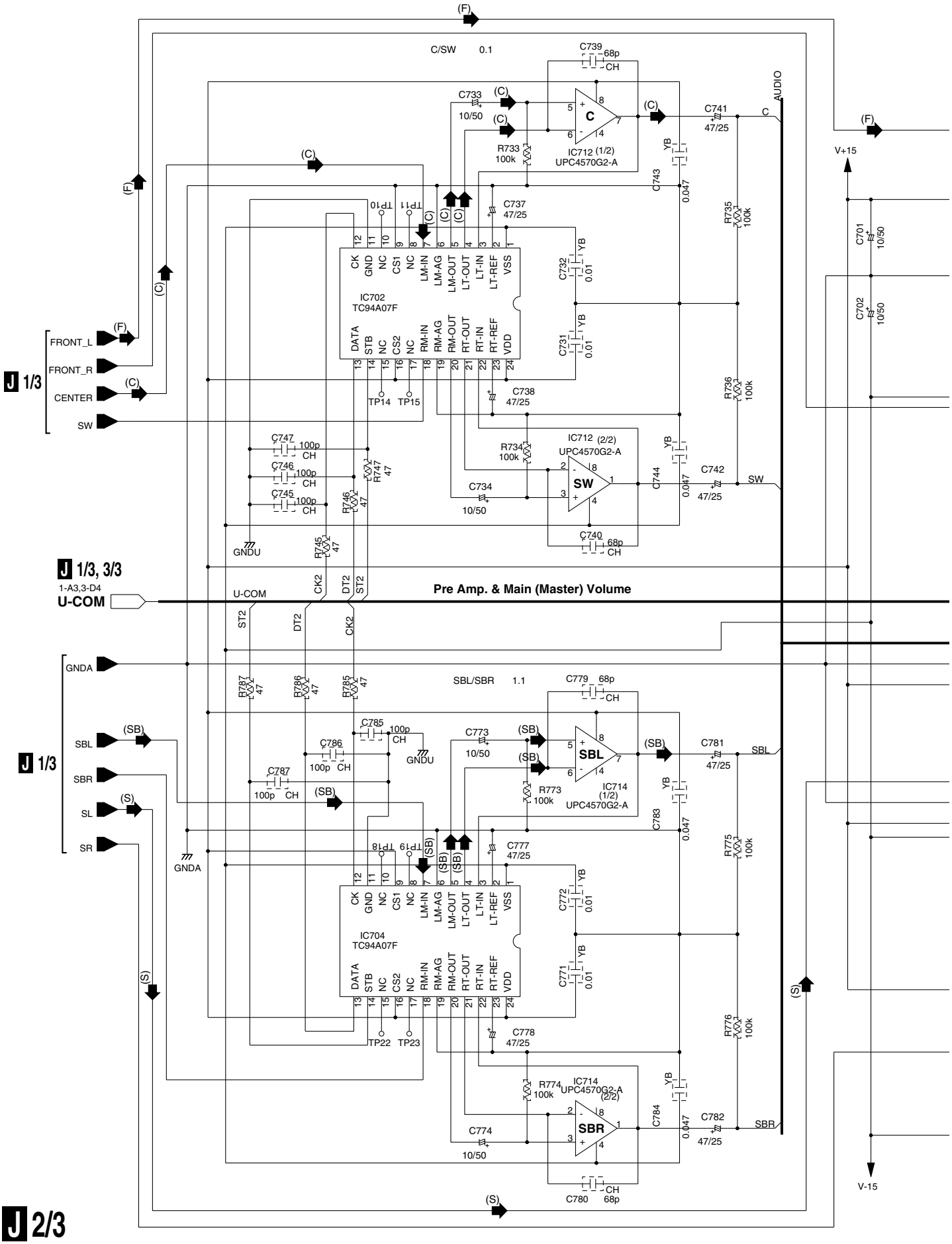
# J 1/3 MAIN CONTROL ASSY (AWX8435)



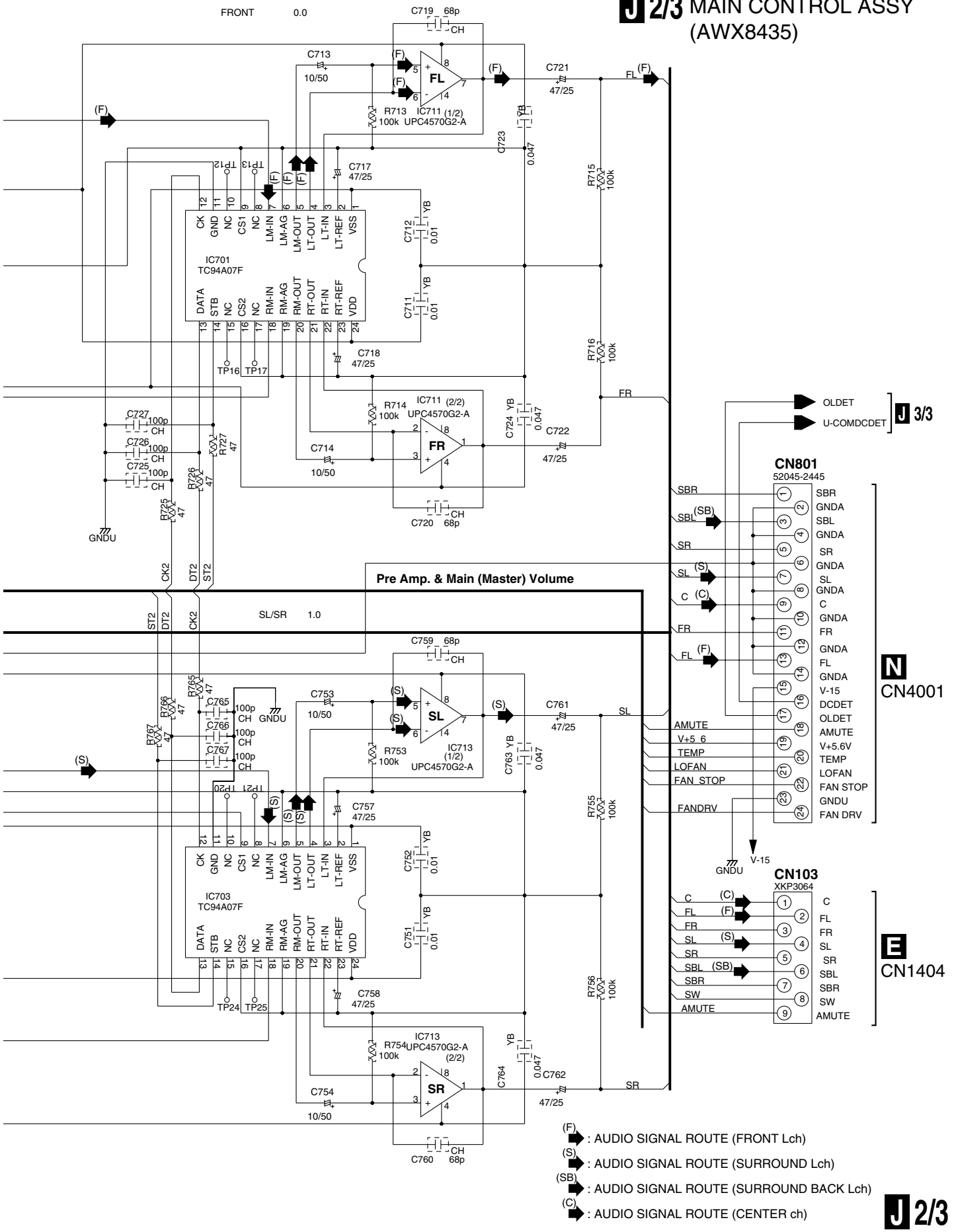

: AUDIO SIGNAL ROUTE (Lch)
(CD-R) : AUDIO SIGNAL ROUTE (CD-R Lch)
(TX) : AUDIO SIGNAL ROUTE (TUNER Lch)
(MR) : AUDIO SIGNAL ROUTE (MULTI-ROOM Lch)
(DVD) : AUDIO SIGNAL ROUTE (DVD Lch)
(F) : AUDIO SIGNAL ROUTE (FRONT Lch)
(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)
(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)
(C) : AUDIO SIGNAL ROUTE (CENTER ch)

J 1/3

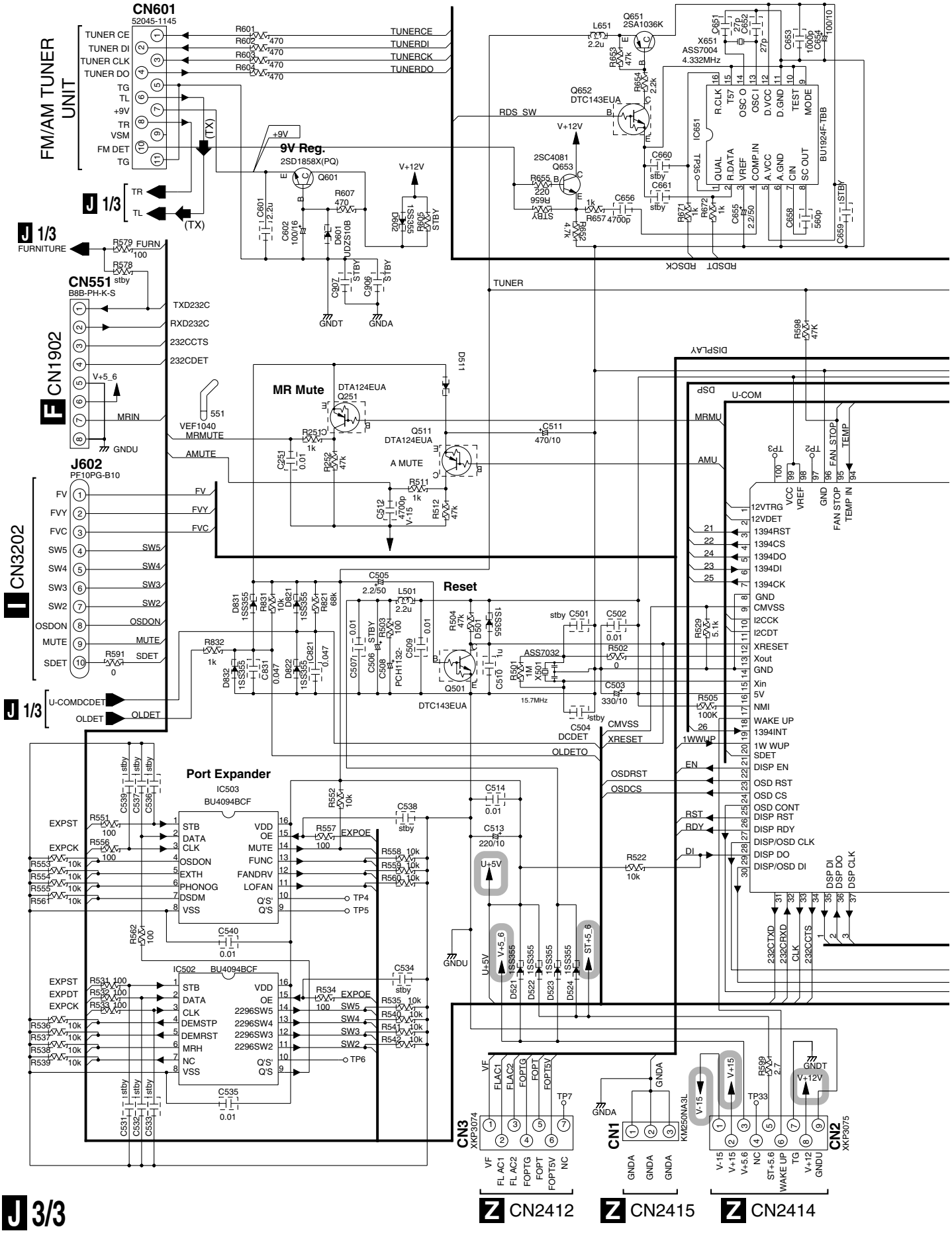
# 3.9 MAIN CONTROL ASSY (2/3)



# J 2/3 MAIN CONTROL ASSY (AWX8435)

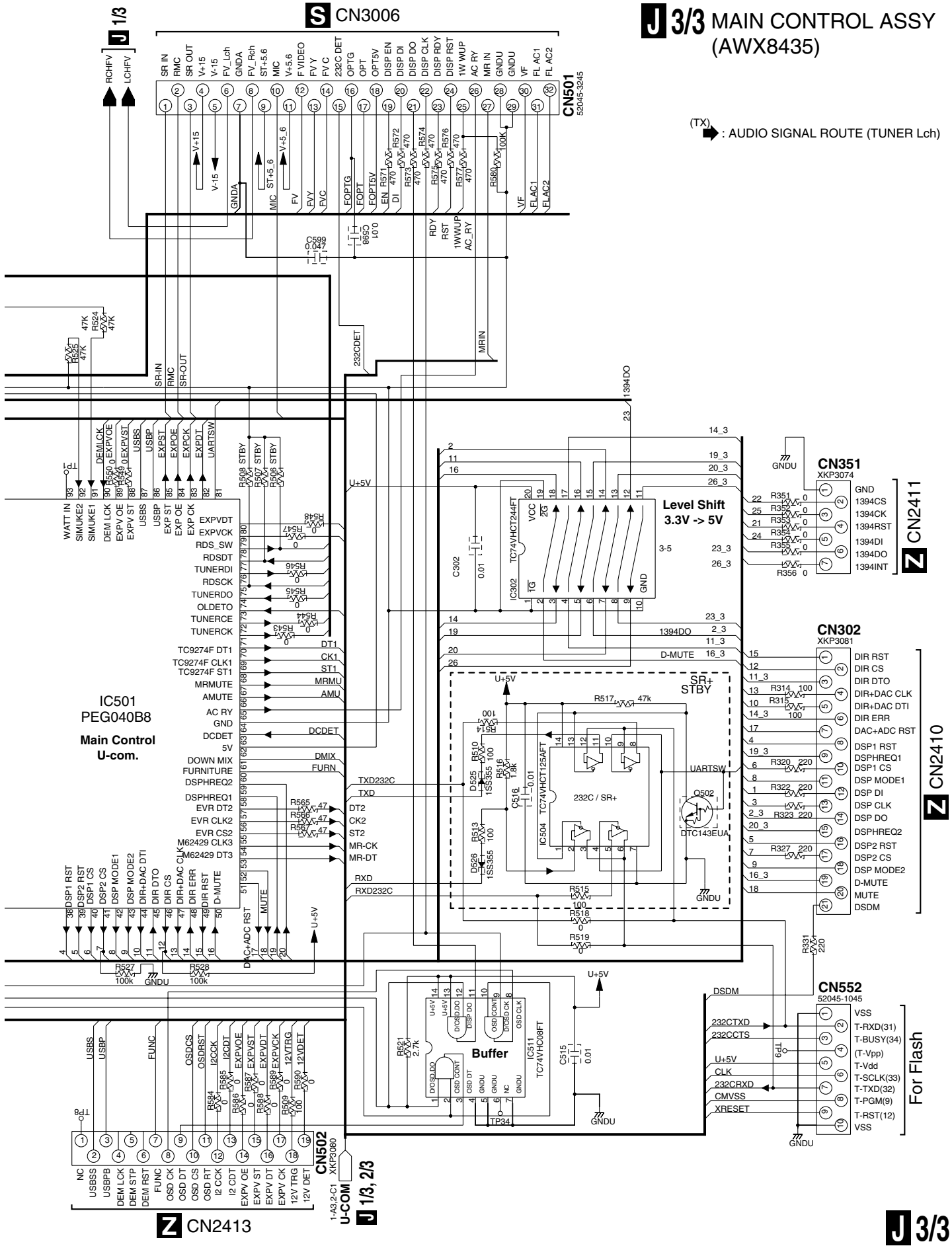


# 3.10 MAIN CONTROL ASSY (3/3)

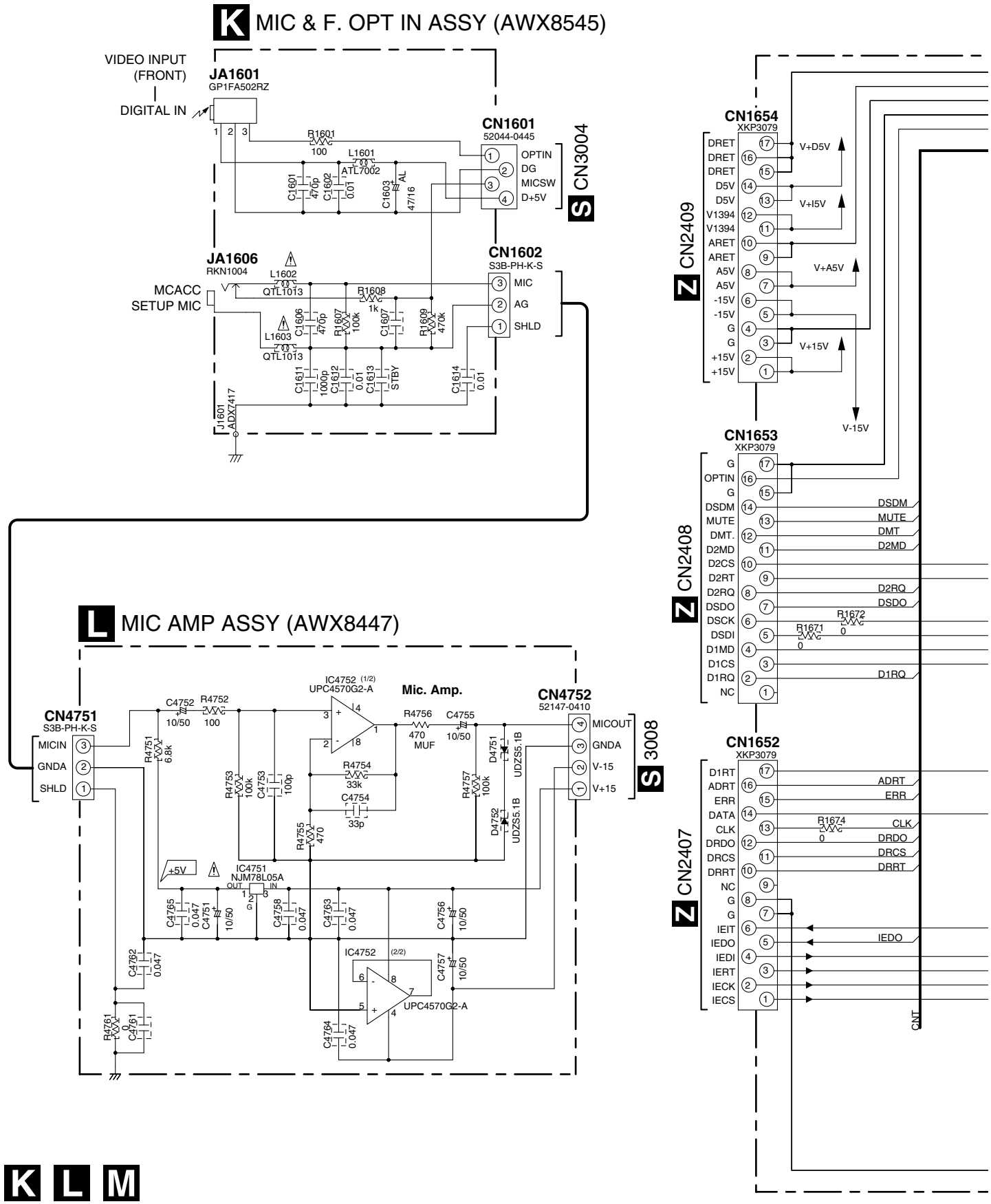


# J 3/3 MAIN CONTROL ASSY (AWX8435)

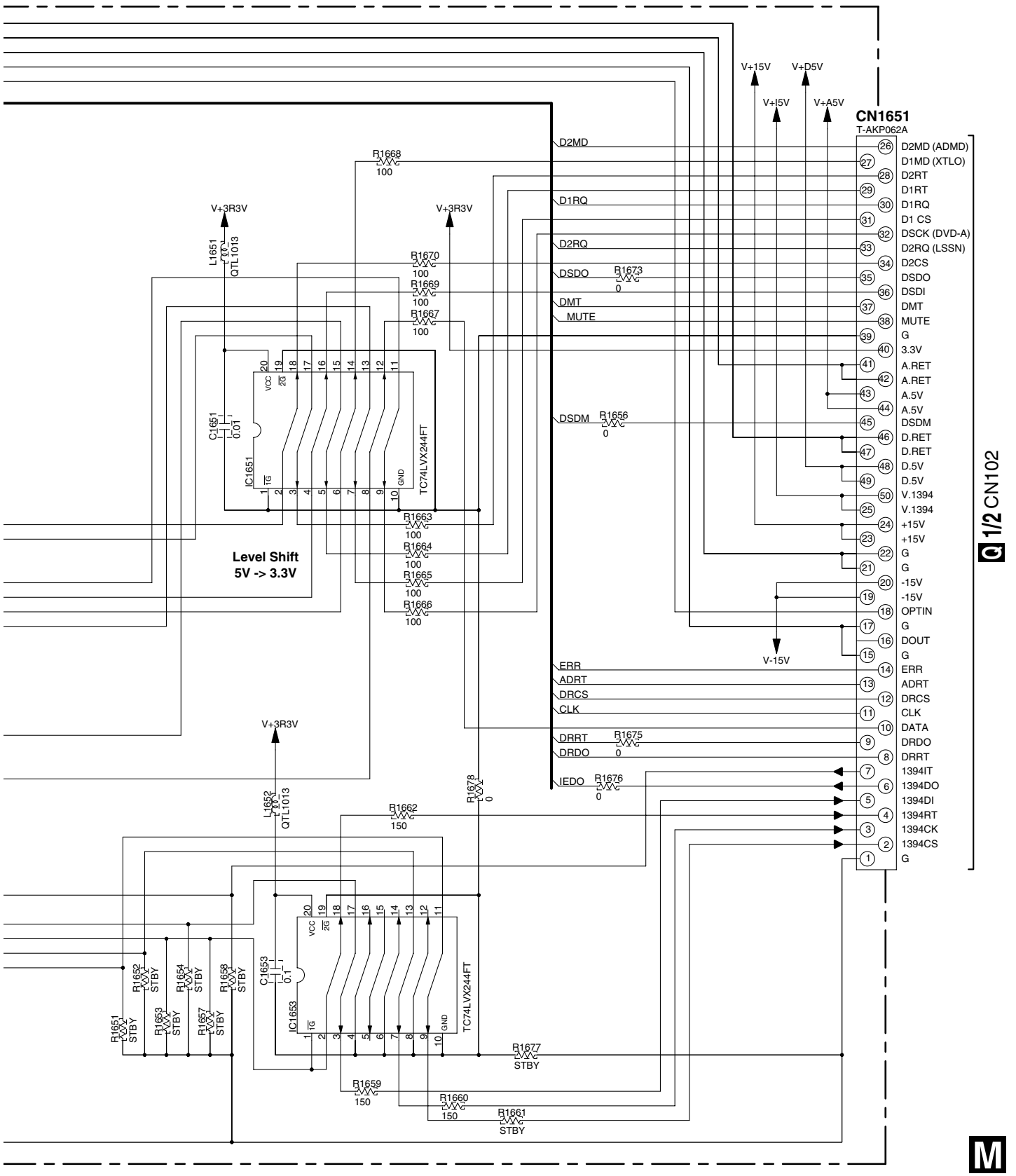
(TX) : AUDIO SIGNAL ROUTE (TUNER Lch)



# 3.11 MIC & F.OPT IN, MIC AMP and DSP CONNECTION ASSYS

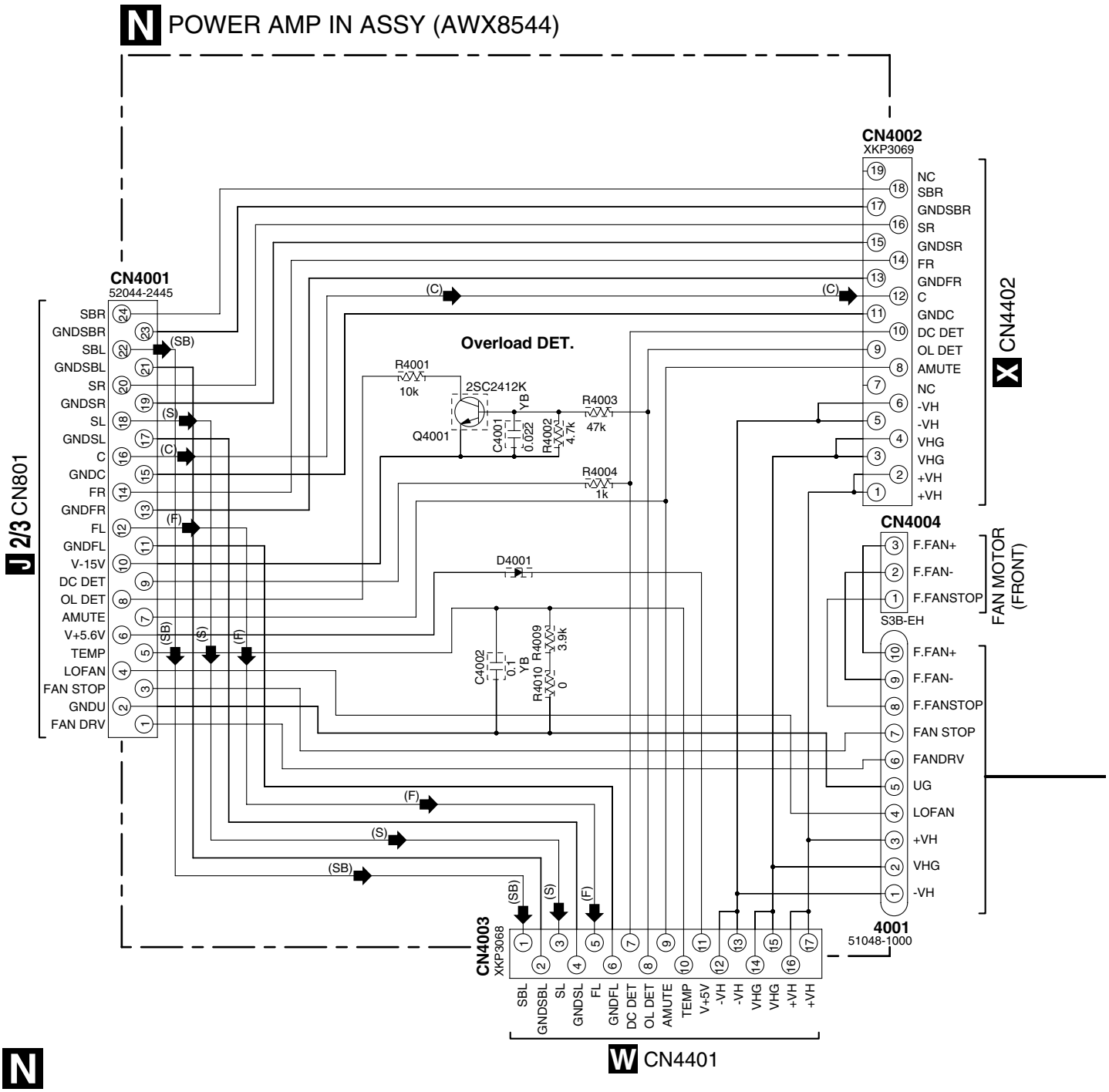


# M DSP CONNECTION ASSY (AWX8441)



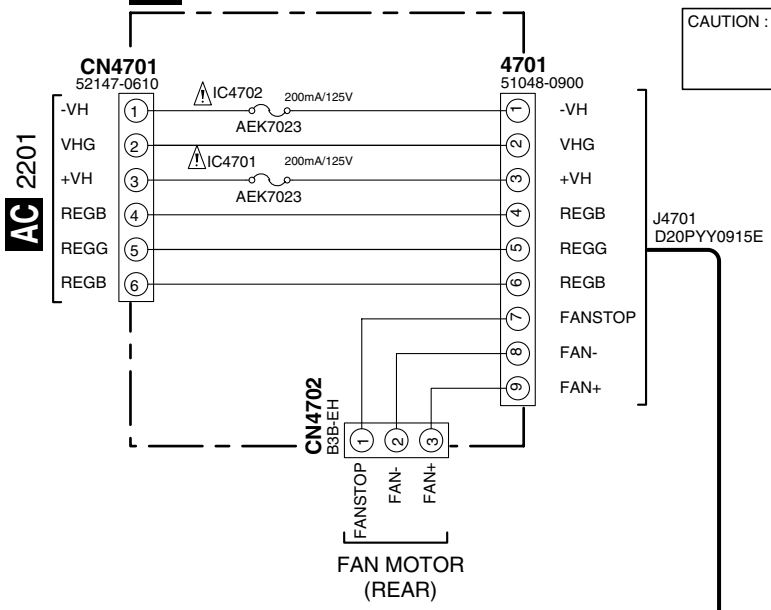
# 3.12 POWER AMP IN, FAN CONNECTION and FAN DRIVE ASSYS

(F) : AUDIO SIGNAL ROUTE (FRONT Lch)
(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)
(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)
(C) : AUDIO SIGNAL ROUTE (CENTER ch)

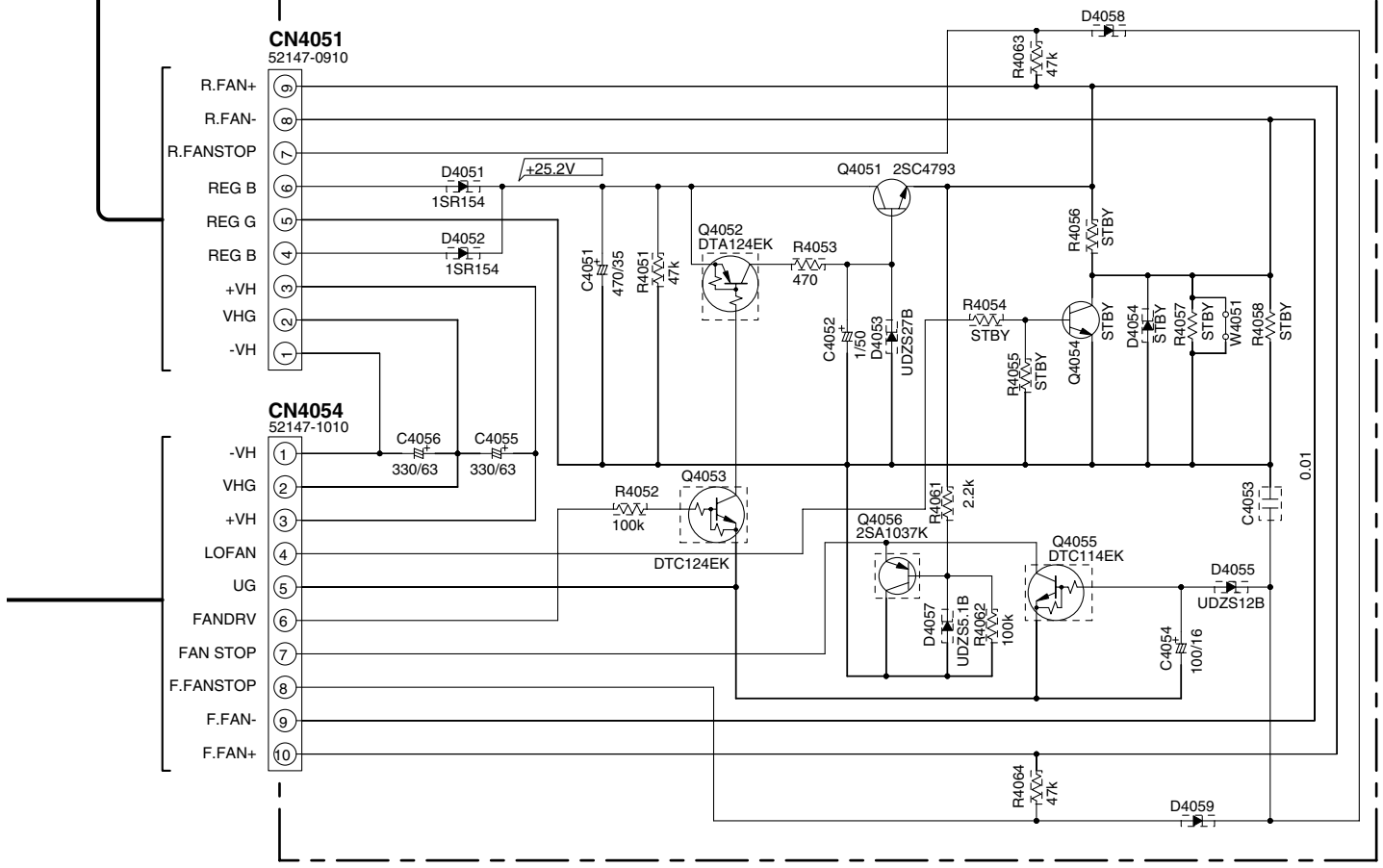


## O FAN CONNECTION ASSY (AWX8448)

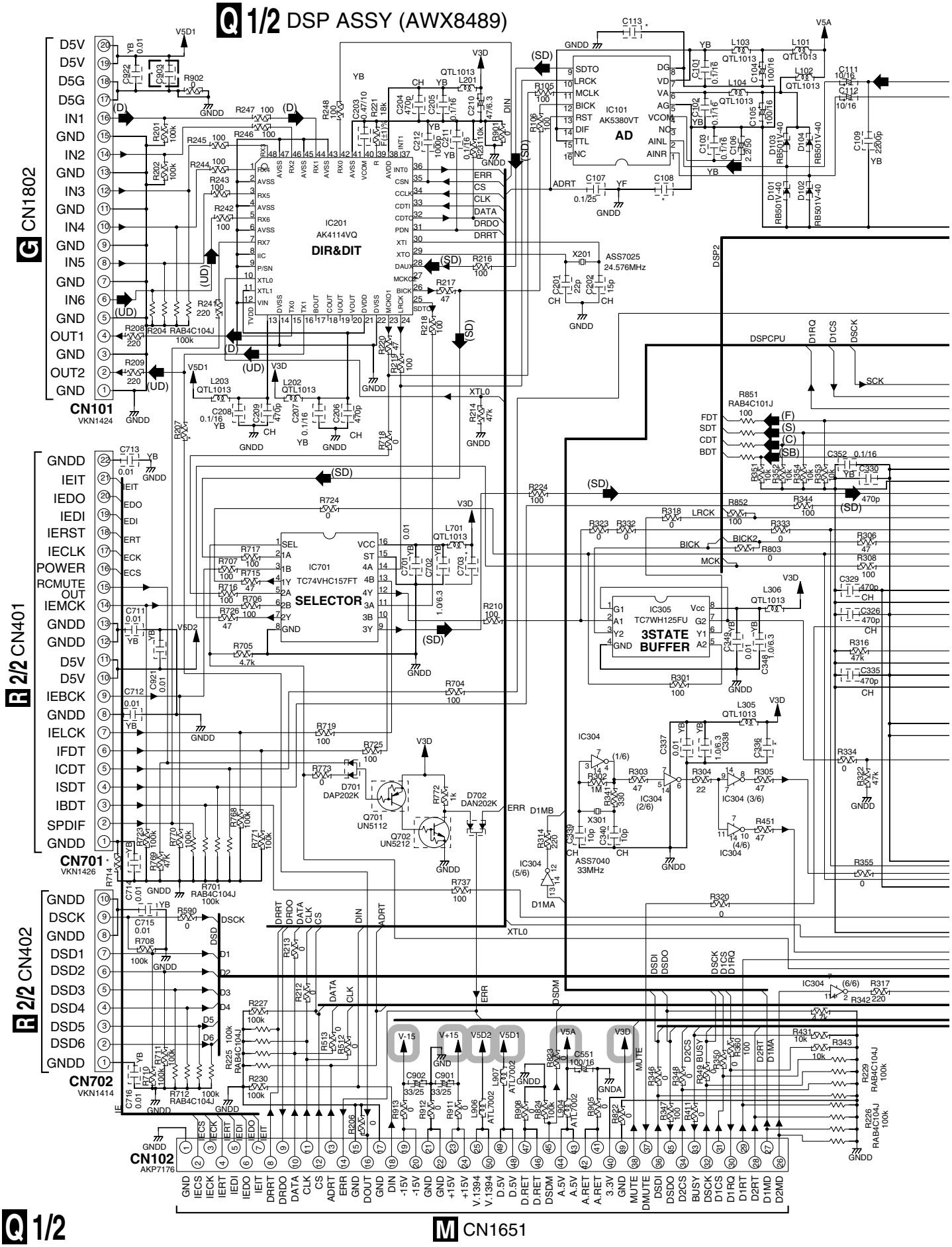
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.200 MFD, BY LITTELFUSE INK. FOR IC4701 AND IC4702.

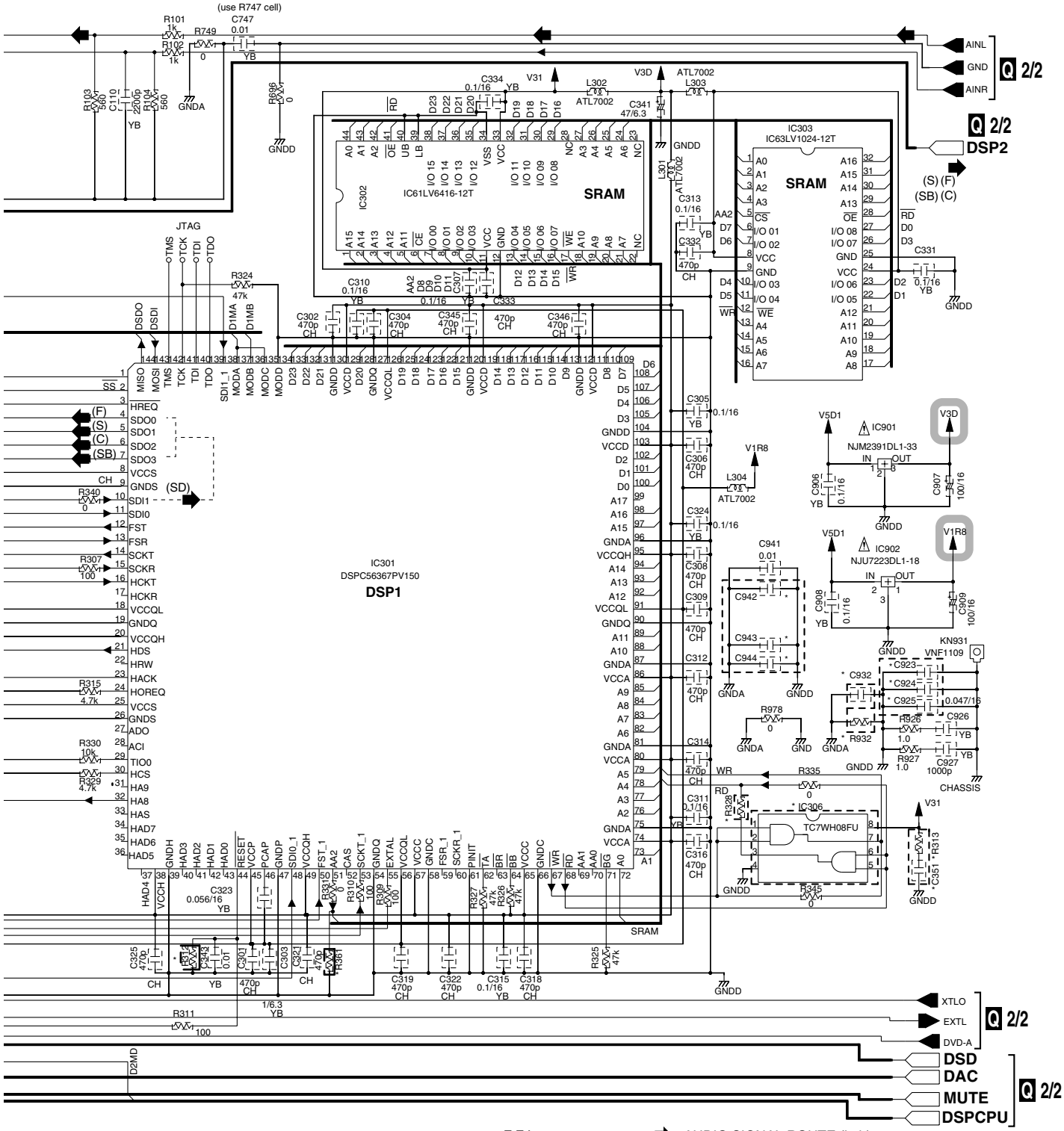



## P FAN DRIVE ASSY (AWX8488)



# 3.13 DSP ASSY (1/2)






: STBY

: AUDIO SIGNAL ROUTE (Lch)

(F) : AUDIO SIGNAL ROUTE (FRONT Lch)

(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)

(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)

(C) : AUDIO SIGNAL ROUTE (CENTER ch)

(SD) : SURROUND DATA SIGNAL ROUTE

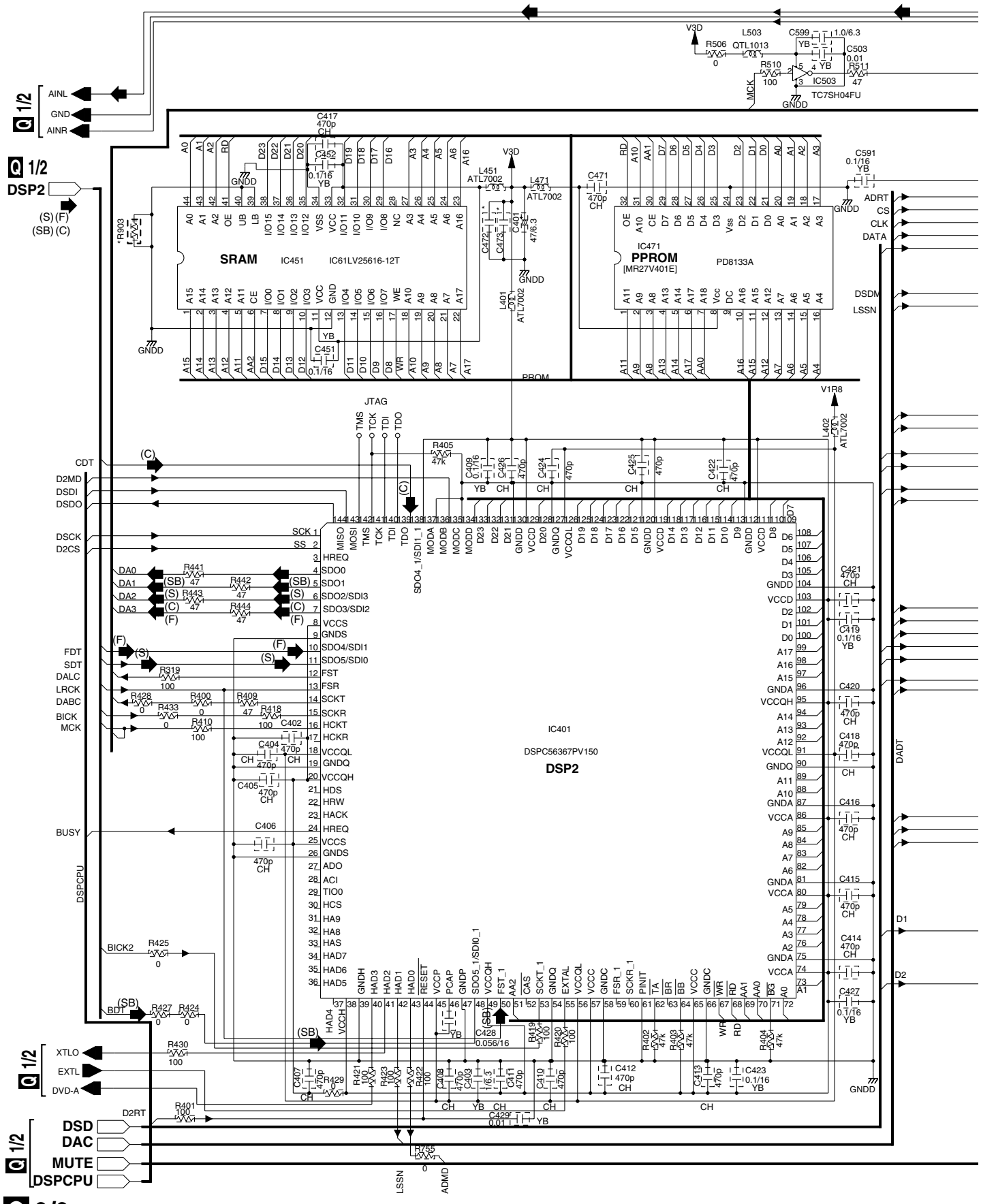
(D) : AUDIO SIGNAL ROUTE (DIGITAL)

(UD) : AUDIO SIGNAL ROUTE (USB DIGITAL)

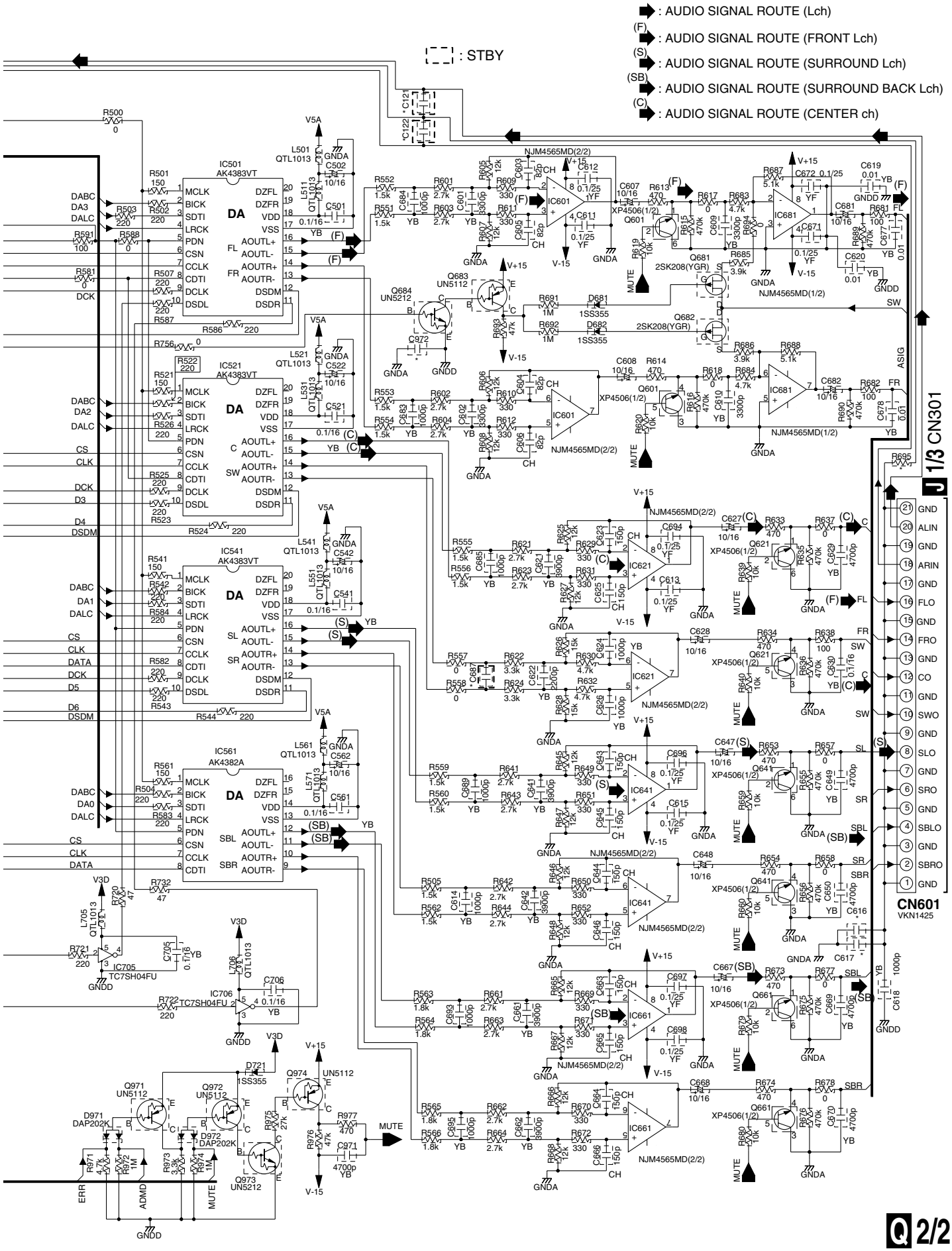
**Q 1/2**

# 3.14 DSP ASSY (2/2)

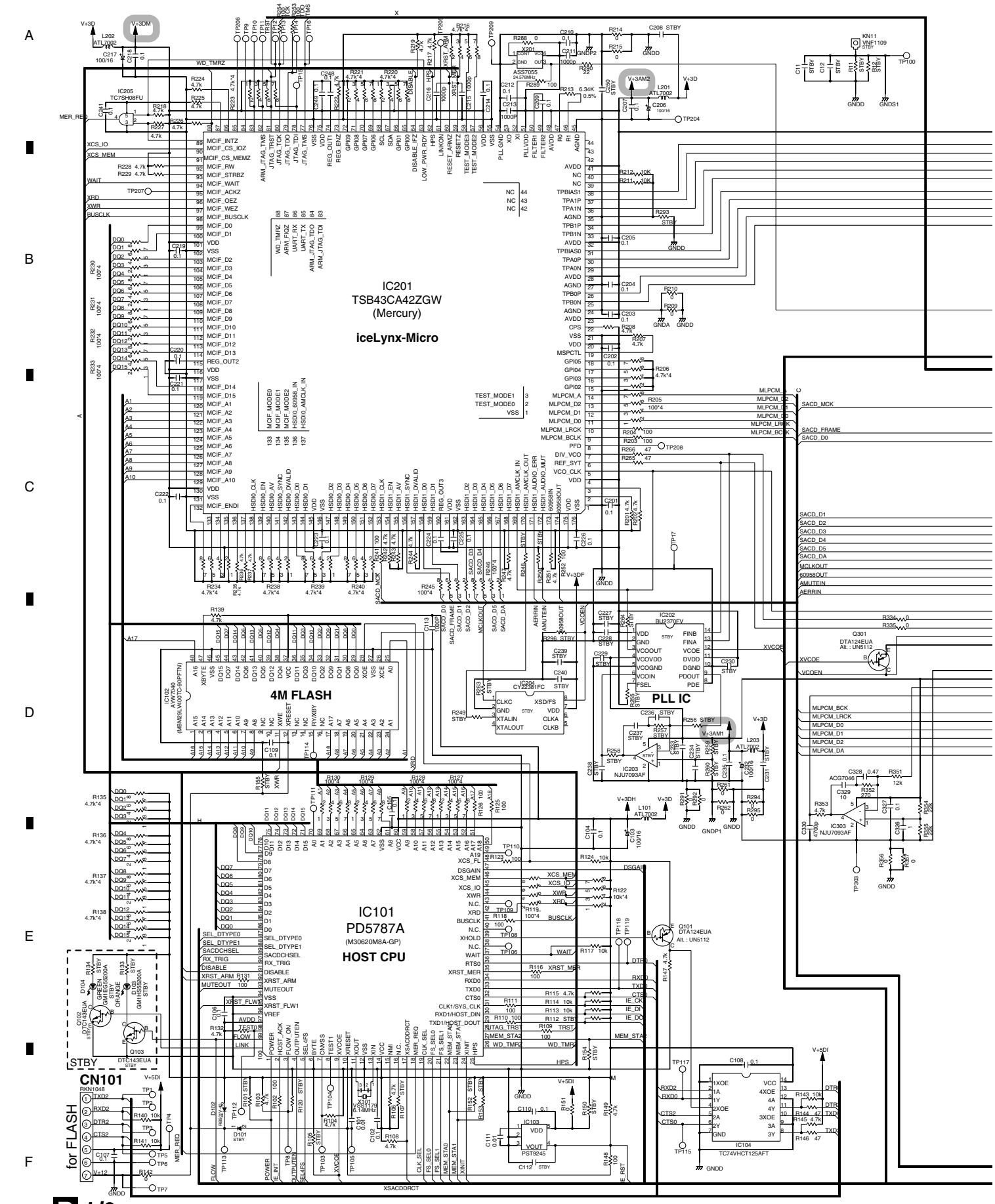
## Q 2/2 DSP ASSY (AWX8489)

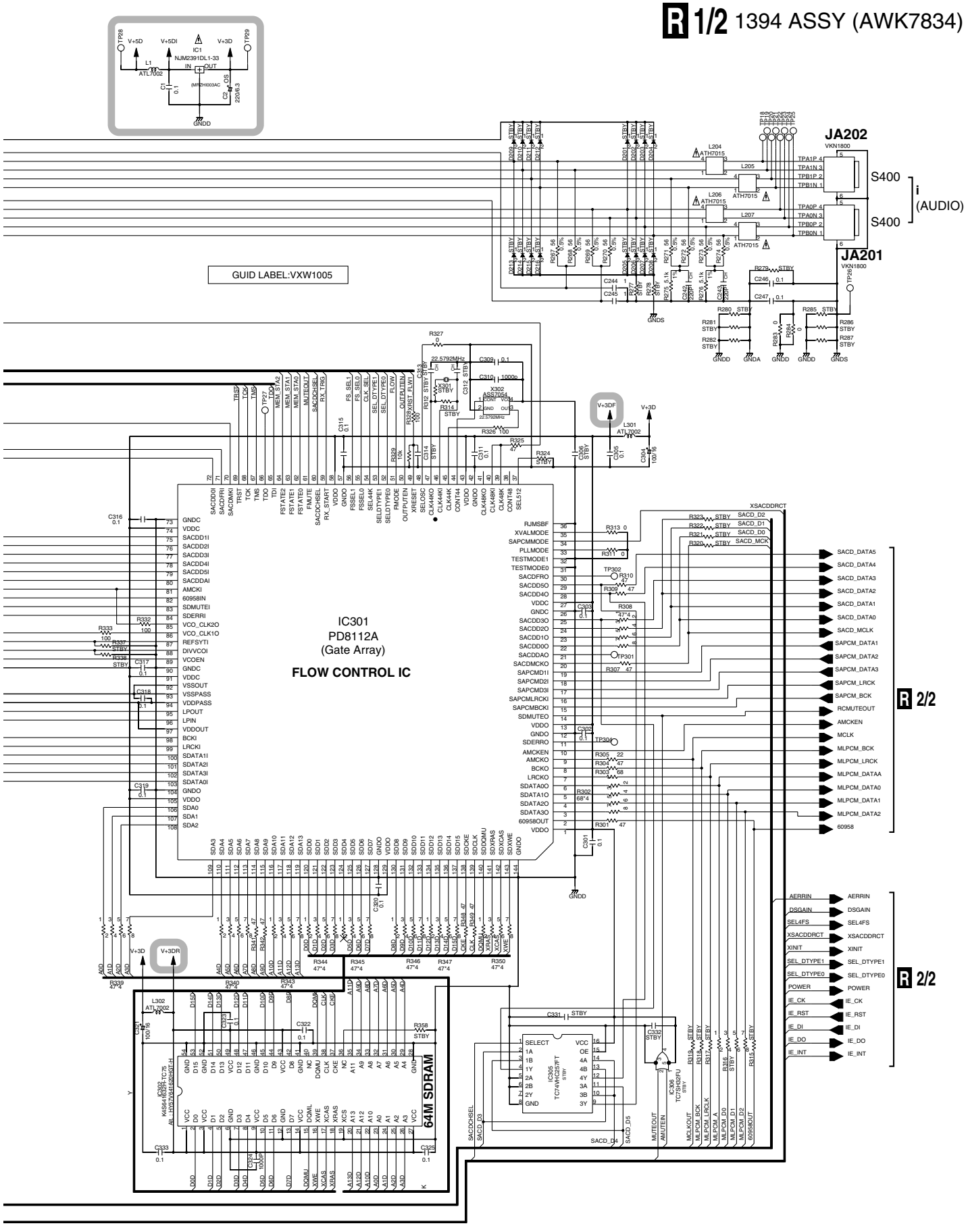



Q 2/2


: AUDIO SIGNAL ROUTE (Lch)
(F) : AUDIO SIGNAL ROUTE (FRONT Lch)
(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)
(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)
(C) : AUDIO SIGNAL ROUTE (CENTER ch)
: STBY
J 1/3 CN301
CN601
VKN1425
Q 2/2
IC501 AK4383VT
IC521 AK4383VT
IC541 AK4383VT
IC561 AK4382A
NJM4565MD(2/2)
NJM4565MD(1/2)
XP4506(1/2)
2SK208(YGR)
TC7SH04FU
DAP202K
UN5112
UN5212
1SS355
MUTE
ERR
ADMD
ASIG
SW
V+15
V-15
V5A
V3D
GNDA
GNDD

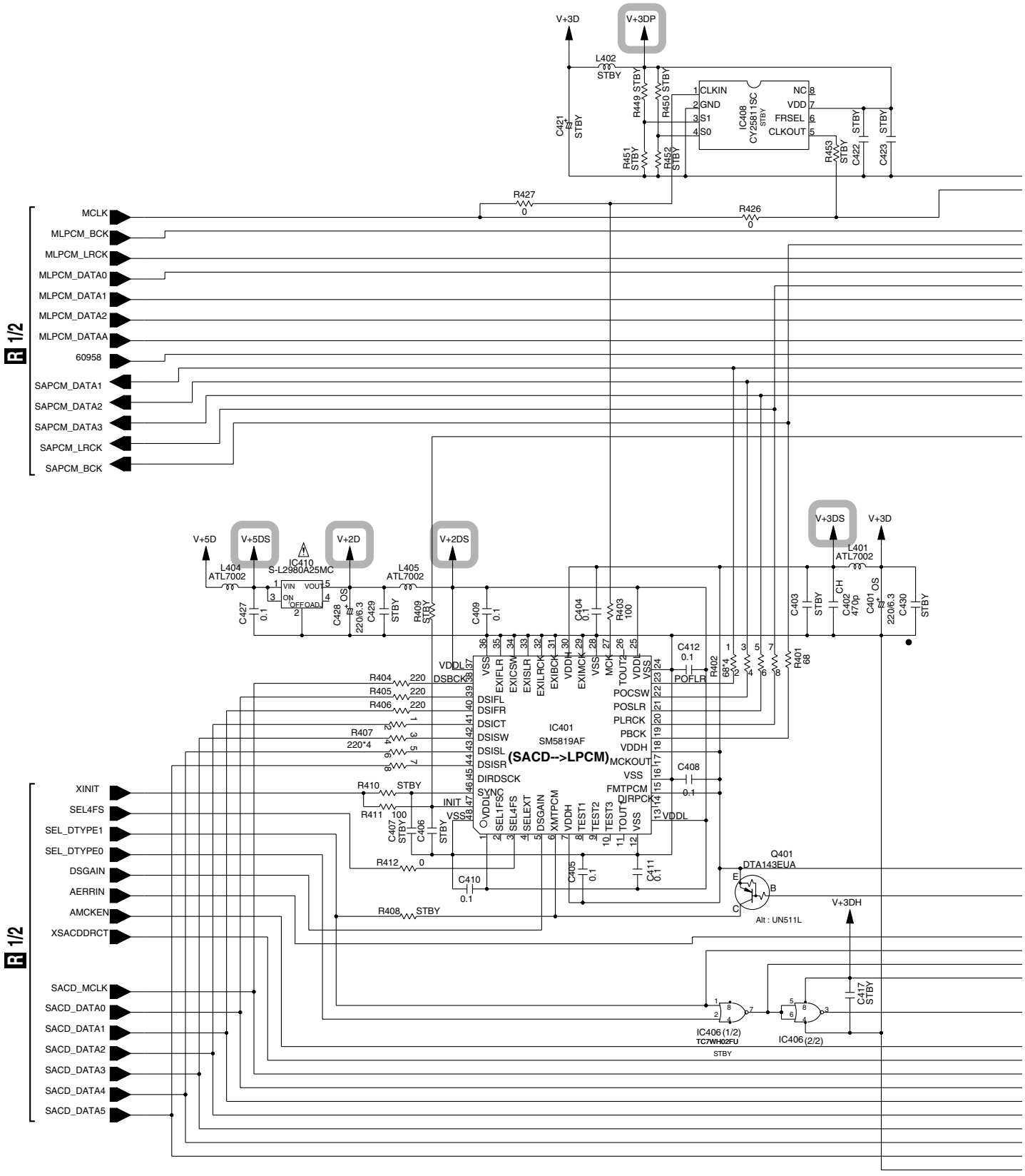
# 3.15 1394 ASSY (1/2)



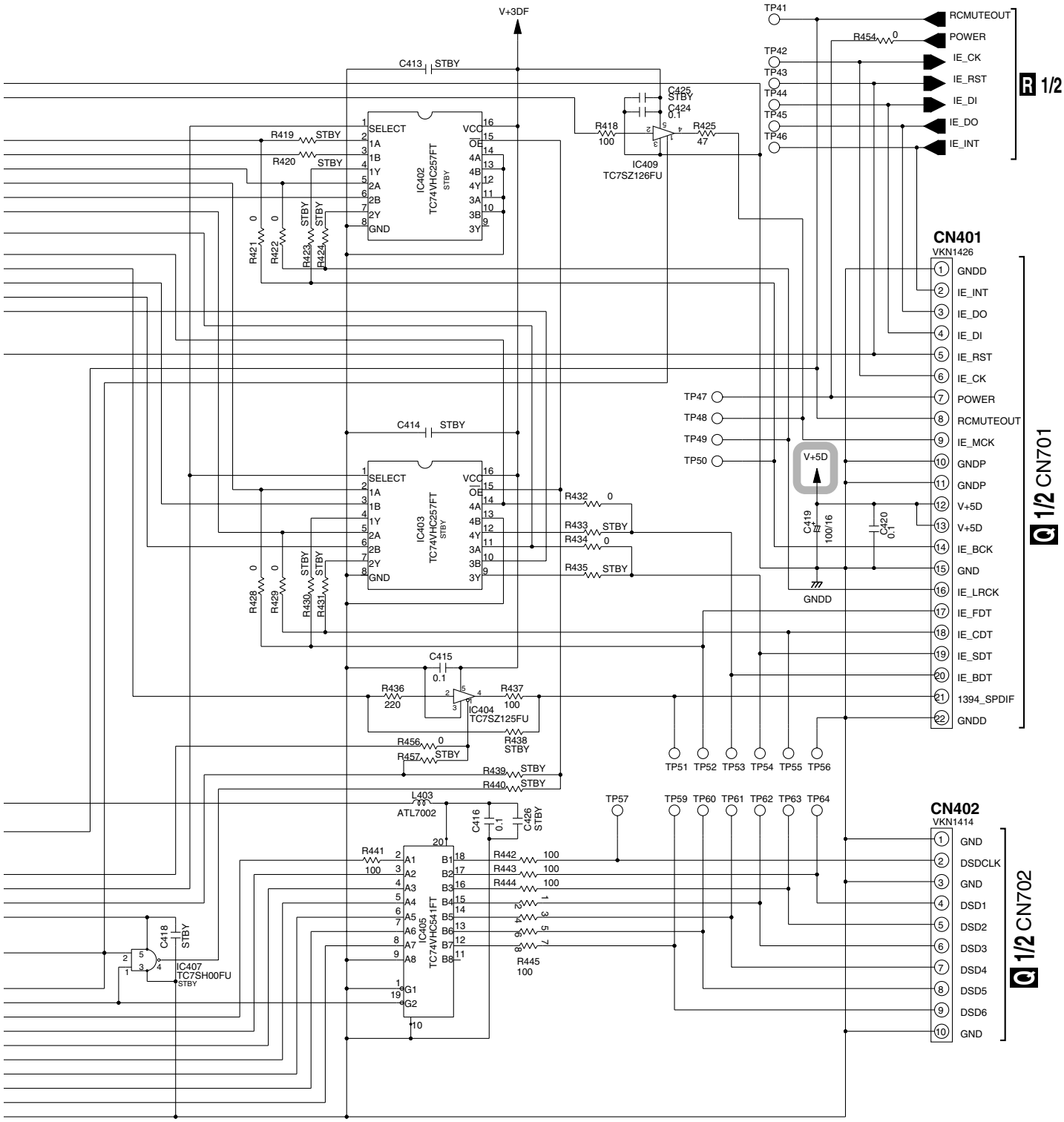

GUID LABEL:VXW1005
IC301
PD8112A
(Gate Array)
FLOW CONTROL IC
64M SDRAM
JA202
VKN1800
JA201
VKN1800
S400
S400
(AUDIO)
R 2/2
R 2/2
R 1/2

# 3.16 1394 ASSY (2/2)

## R 2/2 1394 ASSY (AWK7834)

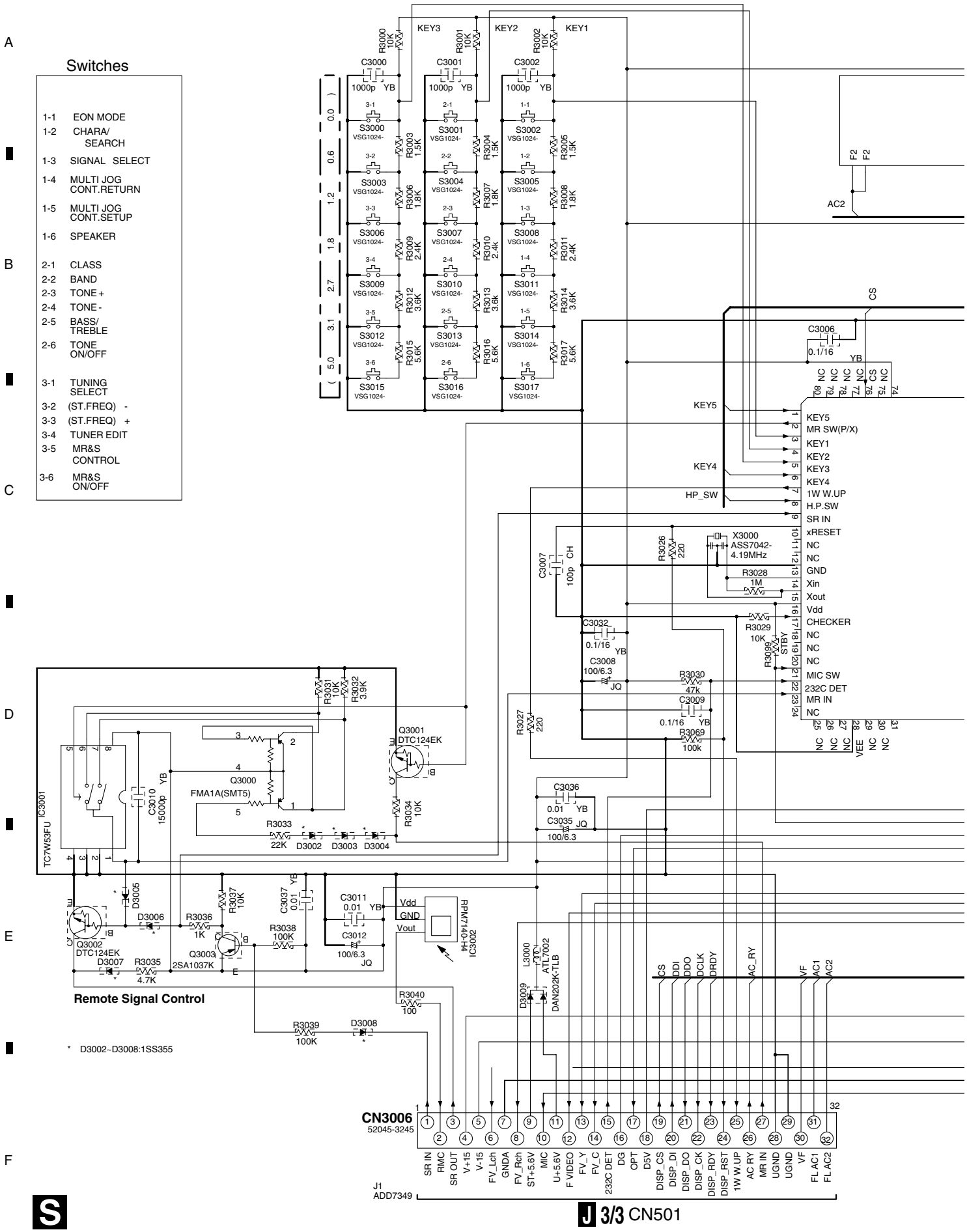



R 2/2

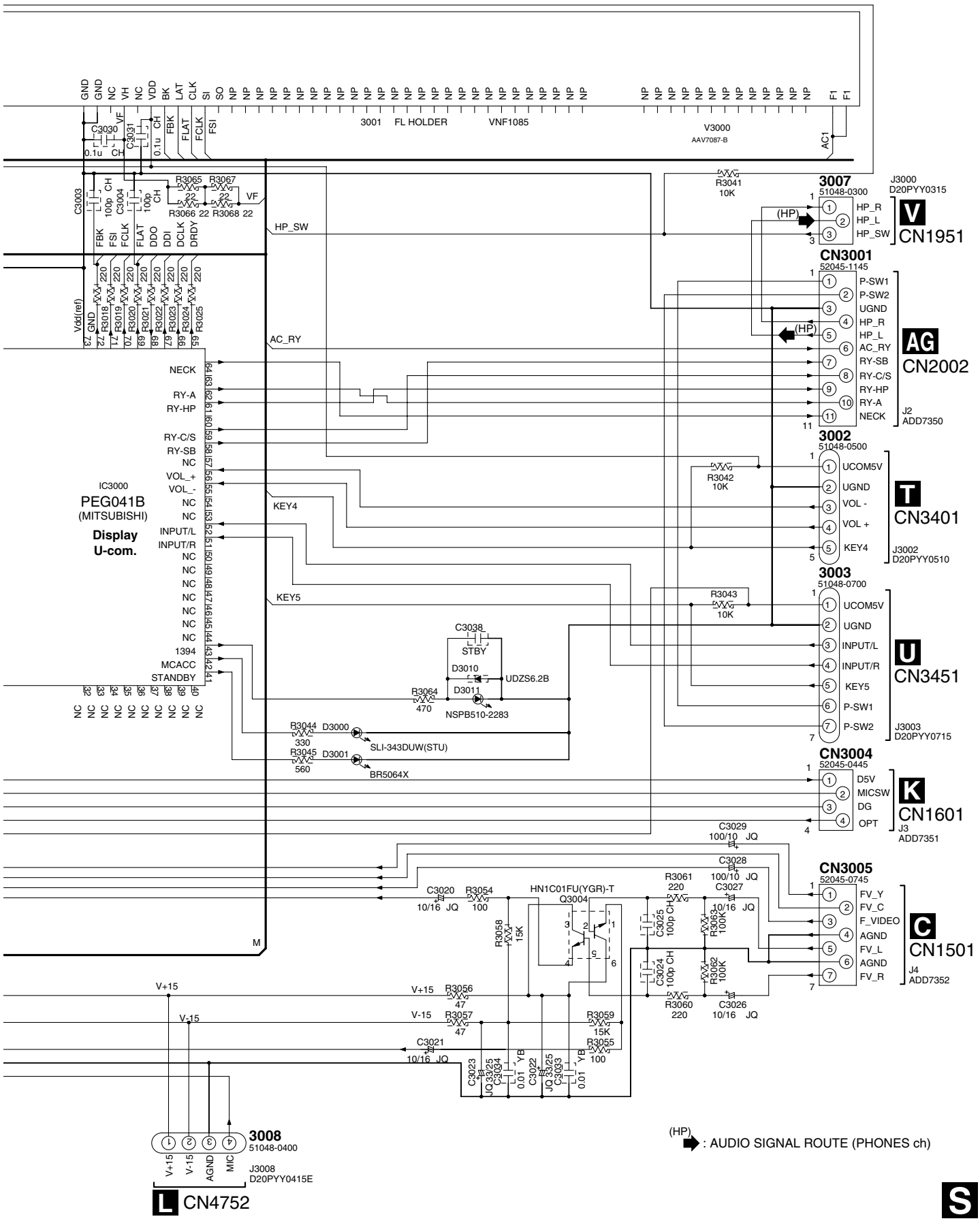

V+3DF
C413 STBY
C425 STBY
C424 0.1
R418 100
R425 47
IC409 TC7SZ126FU
R419 STBY
R420 STBY
R421 0
R422 0
R423 STBY
R424 STBY
IC402 TC74VHC257FT STBY
SELECT
1A
1B
1Y
2A
2B
2Y
GND
VCC
OE
4A
4B
4Y
3A
3B
3Y
C414 STBY
R428 0
R429 0
R430 STBY
R431 STBY
IC403 TC74VHC257FT STBY
R432 0
R433 STBY
R434 0
R435 STBY
C415 0.1
R436 220
R437 100
IC404 TC7SZ125FU
R438 STBY
R456 0
R457 STBY
R439 STBY
R440 STBY
L403 ATL7002
C416 0.1
C426 STBY
R441 100
IC405 TC74VHC541FT
A1
A2
A3
A4
A5
A6
A7
A8
G1
G2
B1
B2
B3
B4
B5
B6
B7
B8
R442 100
R443 100
R444 100
R445 100
C418 STBY
IC407 TC7SH00FU STBY
TP41
TP42
TP43
TP44
TP45
TP46
RCMUTEOUT
POWER
IE_CK
IE_RST
IE_DI
IE_DO
IE_INT
R454 0
R 1/2
CN401
VKN1426
GNDD
IE_INT
IE_DO
IE_DI
IE_RST
IE_CK
POWER
RCMUTEOUT
IE_MCK
GNDP
GNDP
V+5D
V+5D
IE_BCK
GND
IE_LRCK
IE_FDT
IE_CDT
IE_SDT
IE_BDT
1394_SPDIF
GNDD
Q 1/2 CN701
TP47
TP48
TP49
TP50
V+5D
C419 100/16
C420 0.1
GNDD
TP51
TP52
TP53
TP54
TP55
TP56
TP57
TP59
TP60
TP61
TP62
TP63
TP64
CN402
VKN1414
GND
DSDCLK
GND
DSD1
DSD2
DSD3
DSD4
DSD5
DSD6
GND
Q 1/2 CN702

R 2/2

# 3.17 DISPLAY ASSY

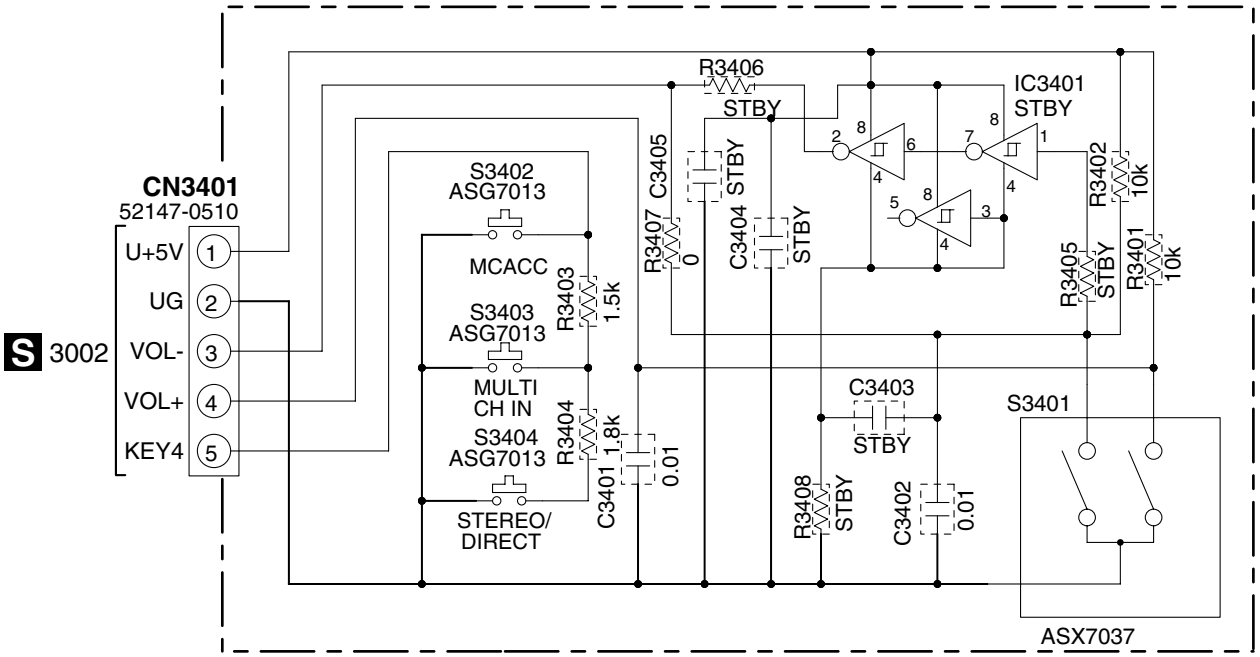


# S DISPLAY ASSY (AWX8559)



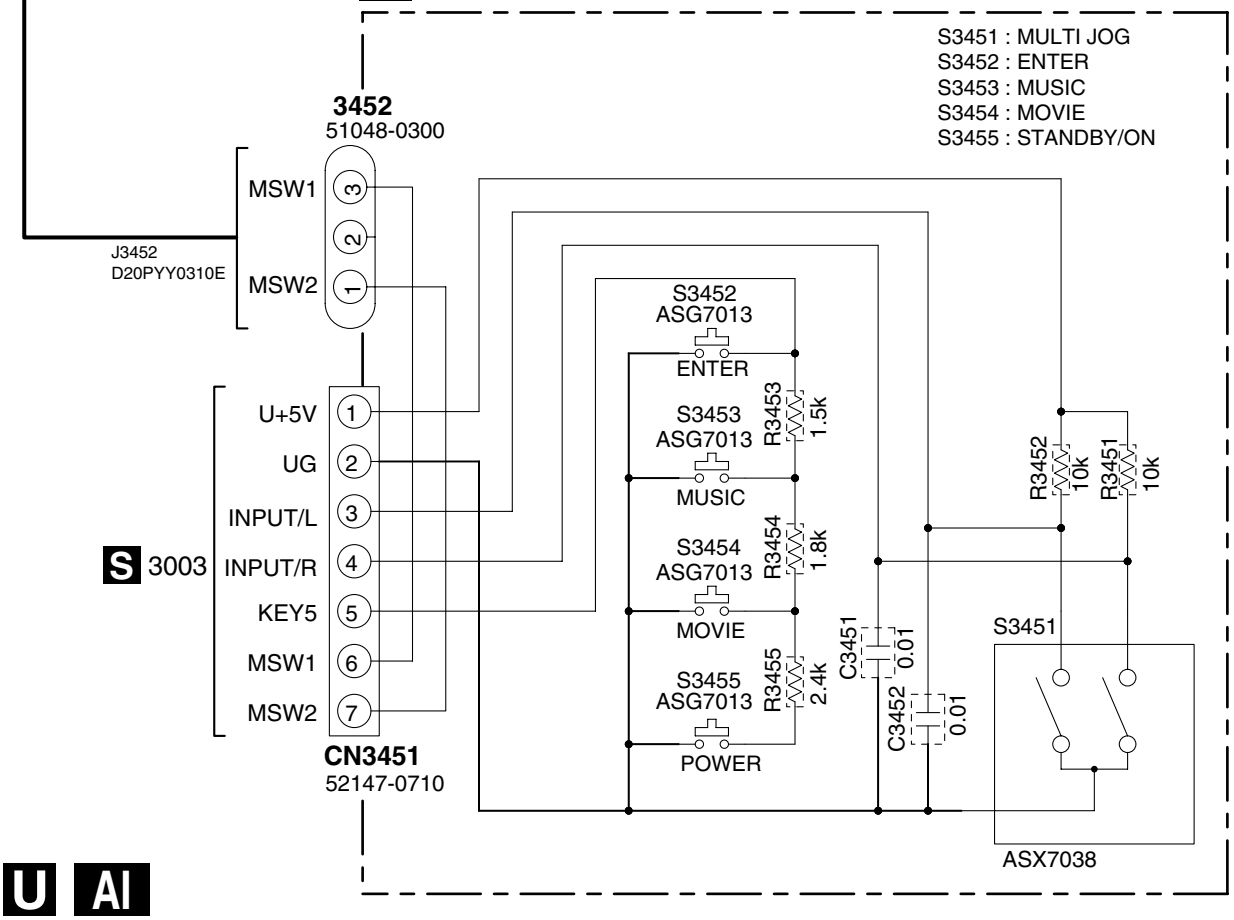
# 3.18 VOLUME, MULTI JOG, HEADPHONE and MECHA SW ASSYS

## T VOLUME ASSY (AWX8550)



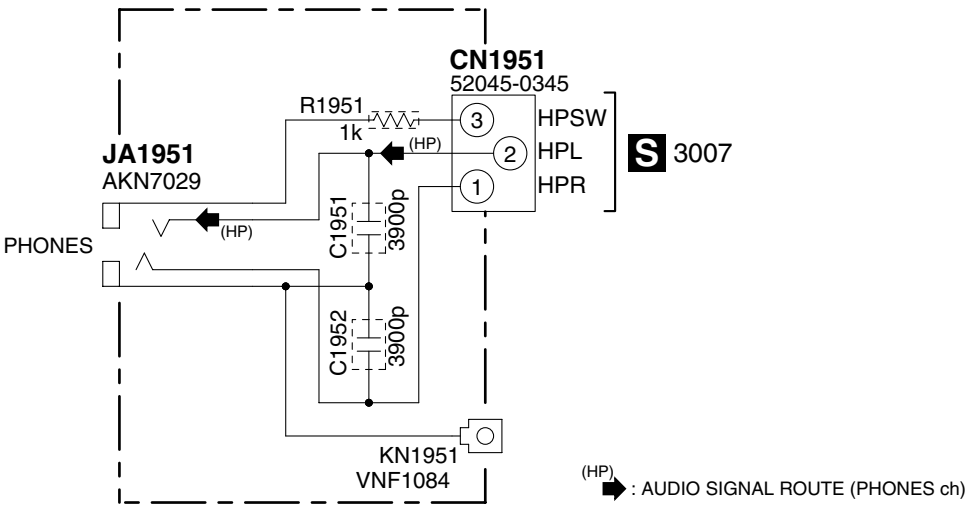

S3401 : MASTER VOLUME
S3402 : ACOUSTIC EQ
S3403 : MULTI CH IN
S3404 : STEREO / DIRECT

## U MULTI JOG ASSY (AWX8552)

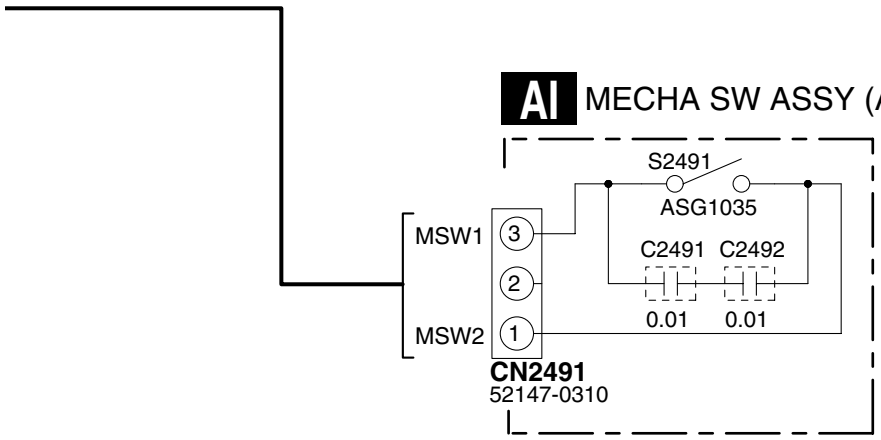



T U AI

## V HEADPHONE ASSY (AWX8554)

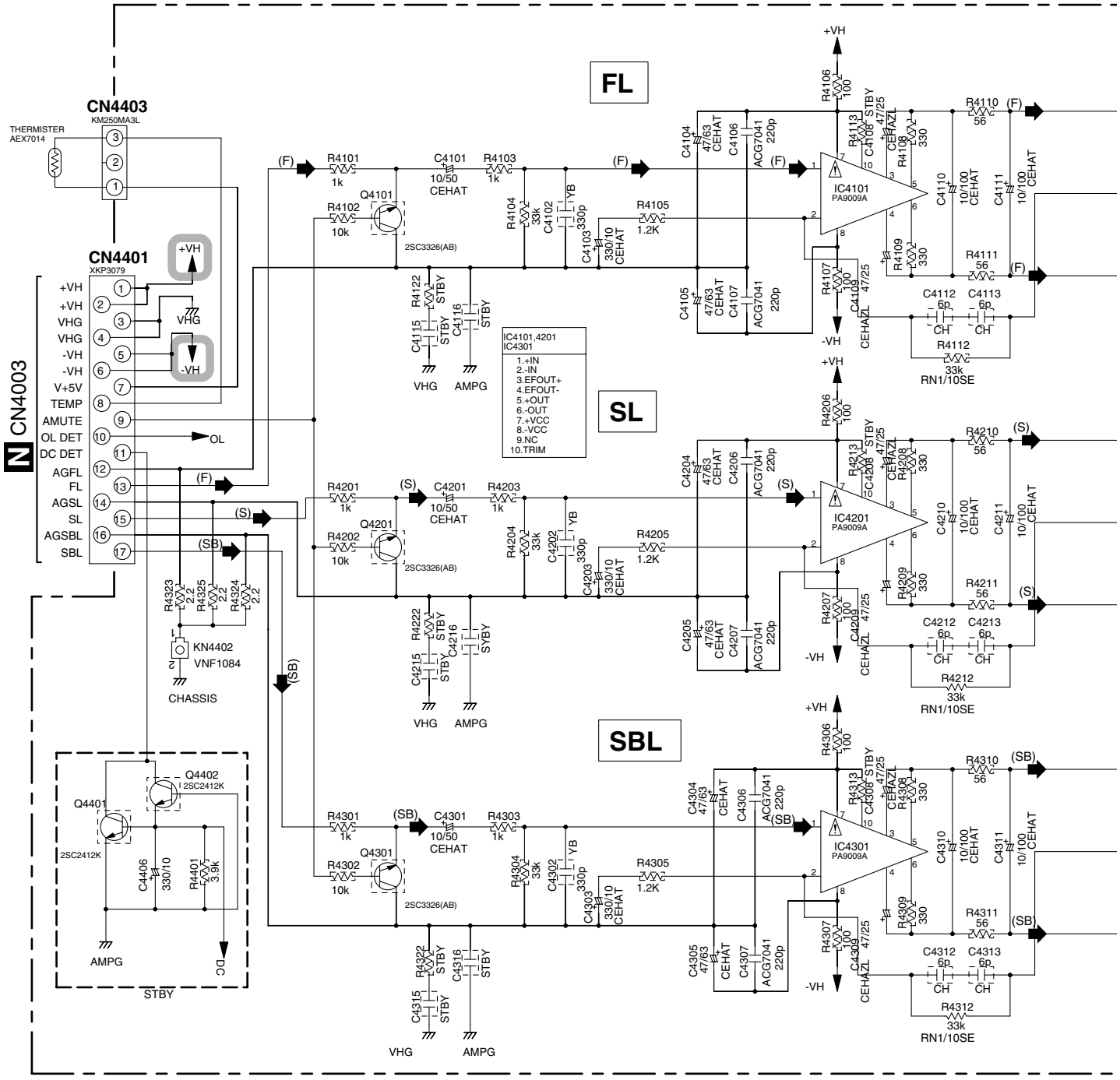



## AI MECHA SW ASSY (AWX8553)



# 3.19 POWER AMP-L ASSY

## W POWER AMP-L ASSY (AWX8560)

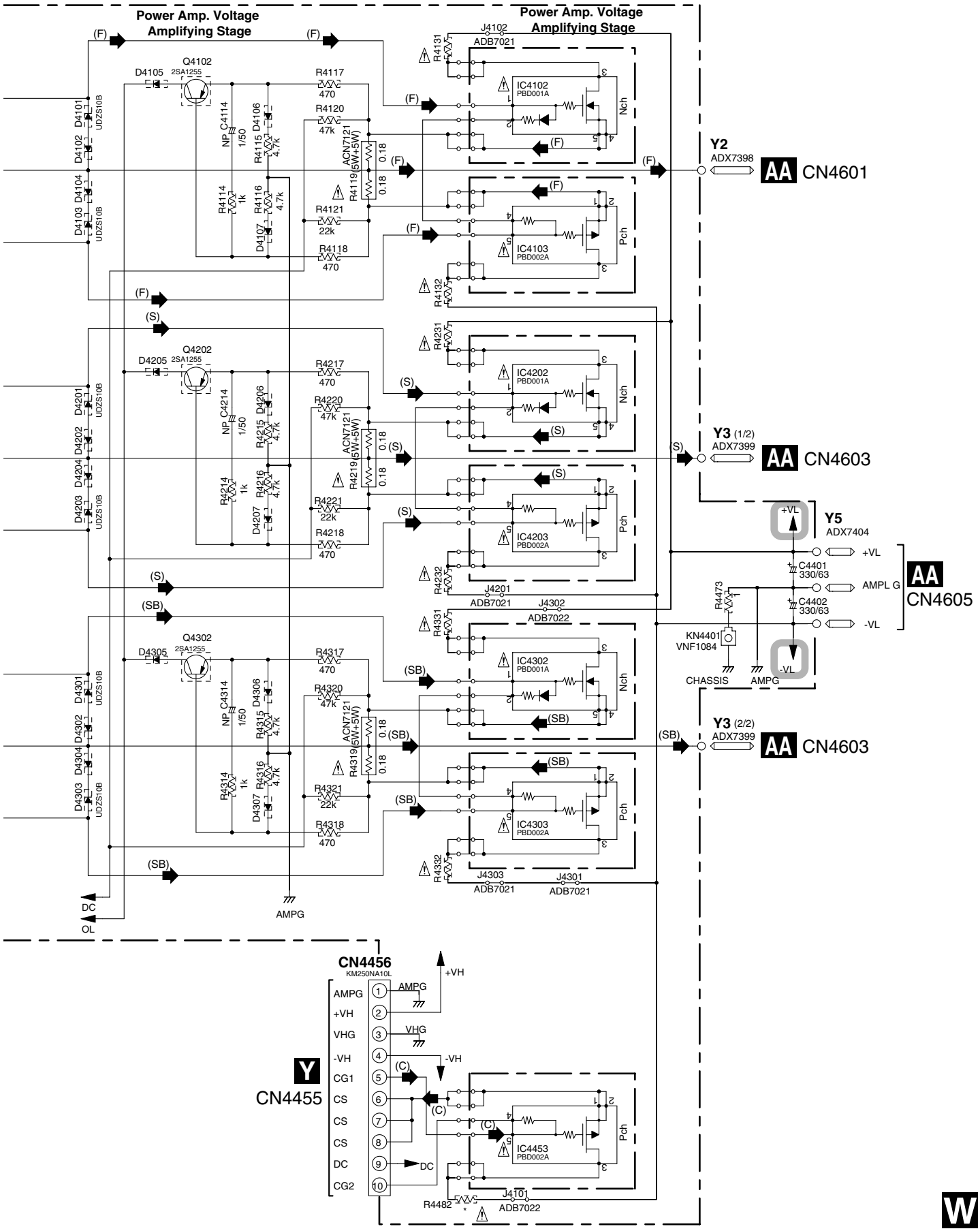



(F) : AUDIO SIGNAL ROUTE (FRONT Lch)

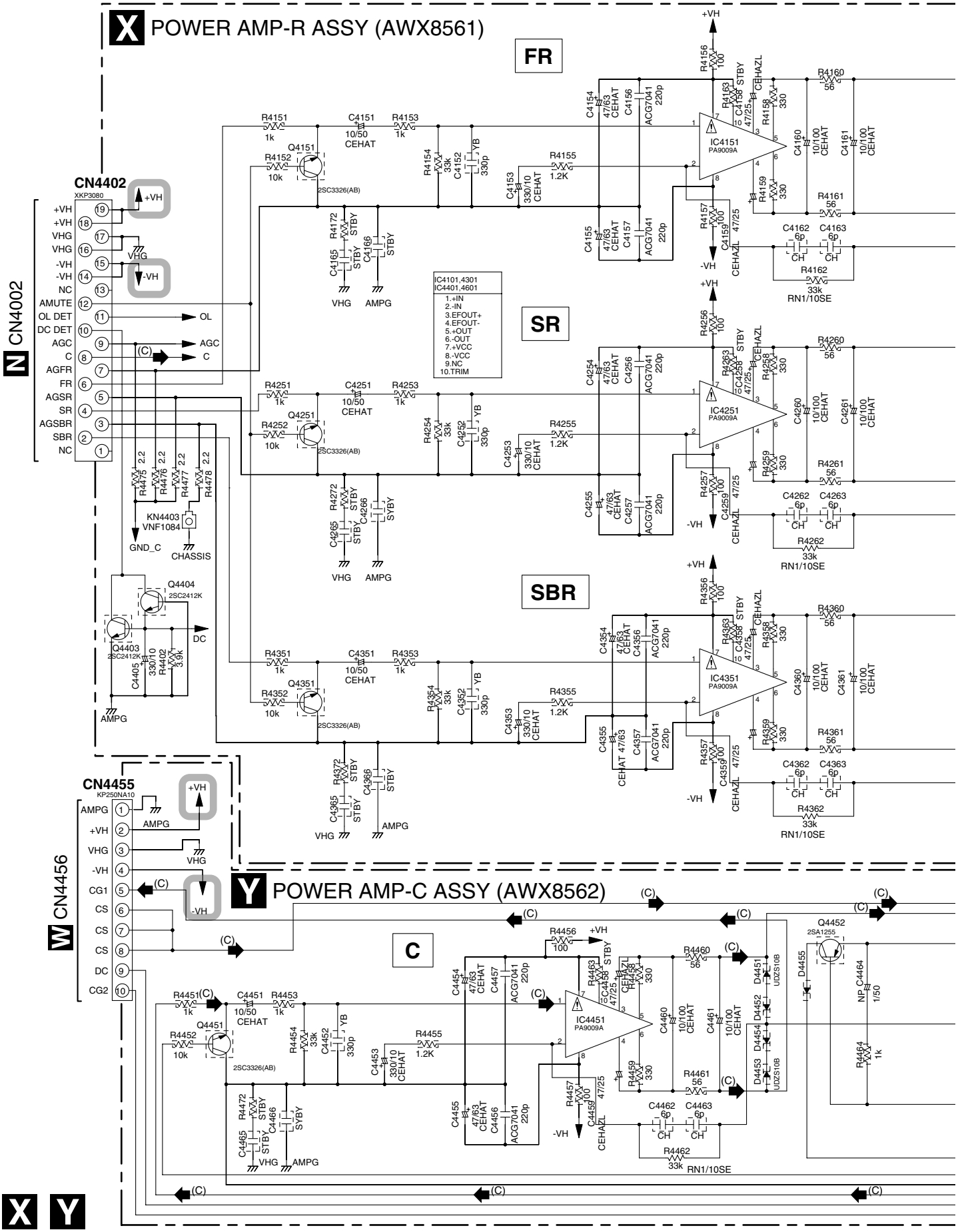
(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)

(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)

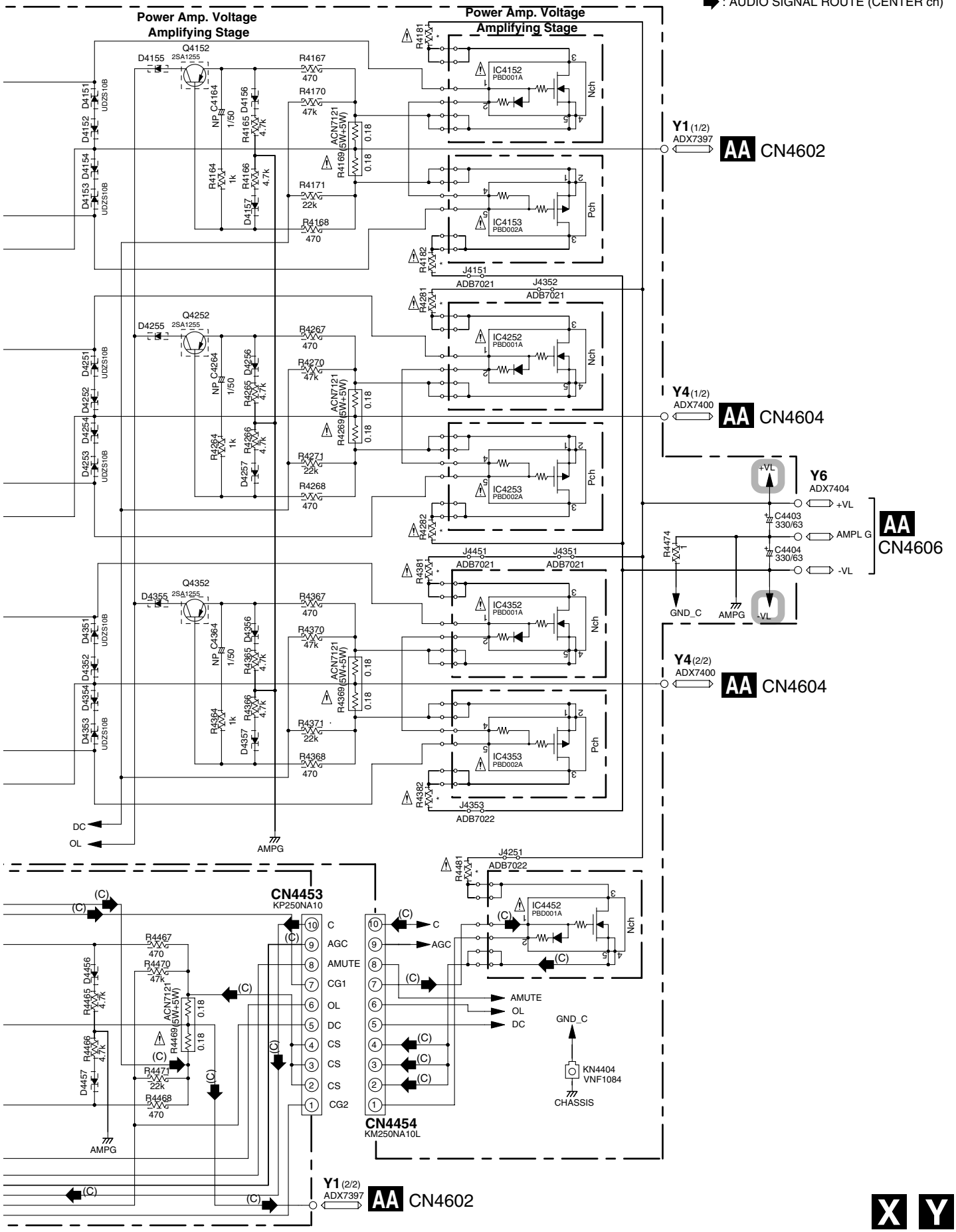
(C) : AUDIO SIGNAL ROUTE (CENTER ch)


Power Amp. Voltage Amplifying Stage
Power Amp. Voltage Amplifying Stage
Q4102
Q4202
Q4302
D4105
D4205
D4305
2SA1255
R4117
R4217
R4317
470
R4120
R4220
R4320
47k
NP_C4214
NP_C4314
1/50
R4115
R4215
R4315
4.7k
D4106
D4206
D4306
R4114
R4214
R4314
1k
R4116
R4216
R4316
D4107
D4207
D4307
ACN7121 (5W+5W)
R4119
R4219
R4319
0.18
R4121
R4221
R4321
22k
R4118
R4218
R4318
D4101
D4102
D4103
D4104
D4201
D4202
D4203
D4204
D4301
D4302
D4303
D4304
UDZS10B
J4102
ADB7021
R4131
R4132
IC4102
PBD001A
IC4103
PBD002A
Nch
Pch
R4231
R4232
IC4202
PBD001A
IC4203
PBD002A
J4201
ADB7021
J4302
ADB7022
R4331
R4332
IC4302
PBD001A
IC4303
PBD002A
J4303
ADB7021
J4301
ADB7021
Y2
ADX7398
AA CN4601
Y3 (1/2)
ADX7399
AA CN4603
Y3 (2/2)
ADX7399
AA CN4603
Y5
ADX7404
+VL
-VL
C4401
330/63
C4402
330/63
AMPL G
AA CN4605
R4473
KN4401
VNF1084
CHASSIS
AMPG
DC
OL
AMPG
CN4456
KM250NA10L
AMPG
+VH
VHG
-VH
CG1
CS
CS
CS
DC
CG2
Y
CN4455
(C)
DC
J4101
ADB7022
R4482
IC4453
PBD002A
(F)
(S)
(SB)

# 3.20 POWER AMP-R and POWER AMP-C ASSYS



(C) : AUDIO SIGNAL ROUTE (CENTER ch)



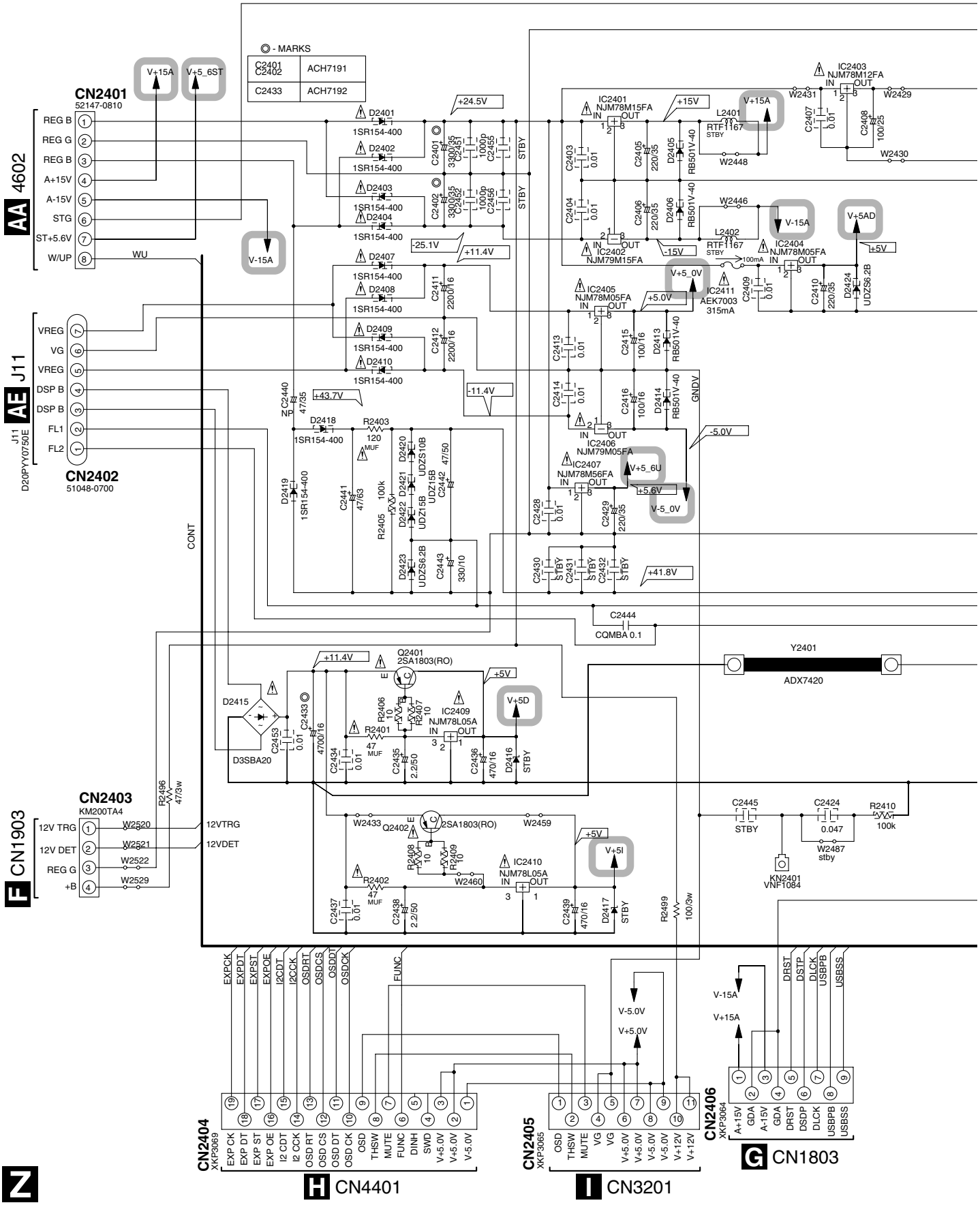
# 3.21 REGULATOR ASSY

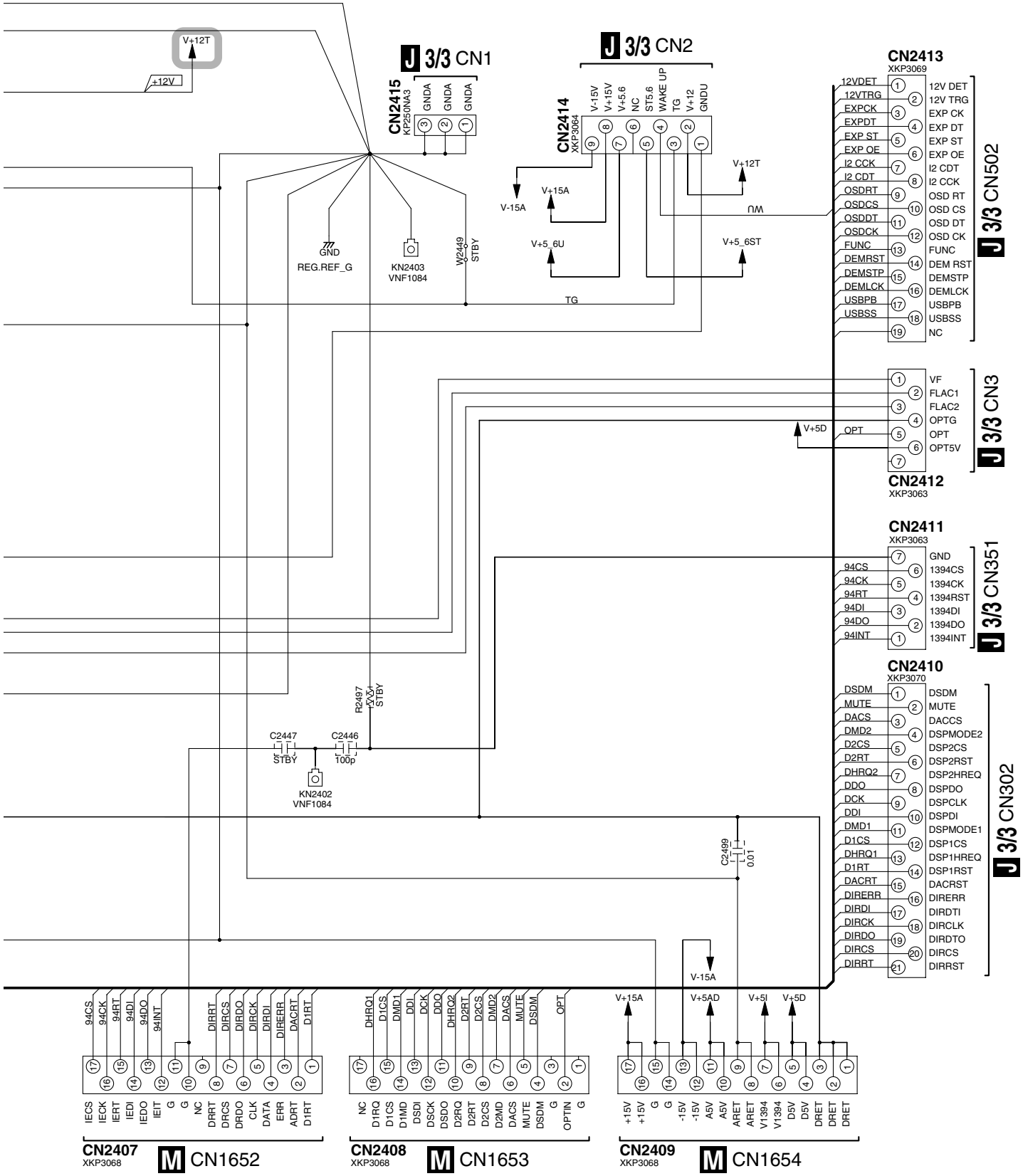
## Z REGULATOR ASSY (AWX8541)

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.315 MFD, BY LITTELFUSE INK. FOR IC2411.

◎ - MARKS

| | |
|---|---|
| C2401 C2402 | ACH7191 |
| C2433 | ACH7192 |

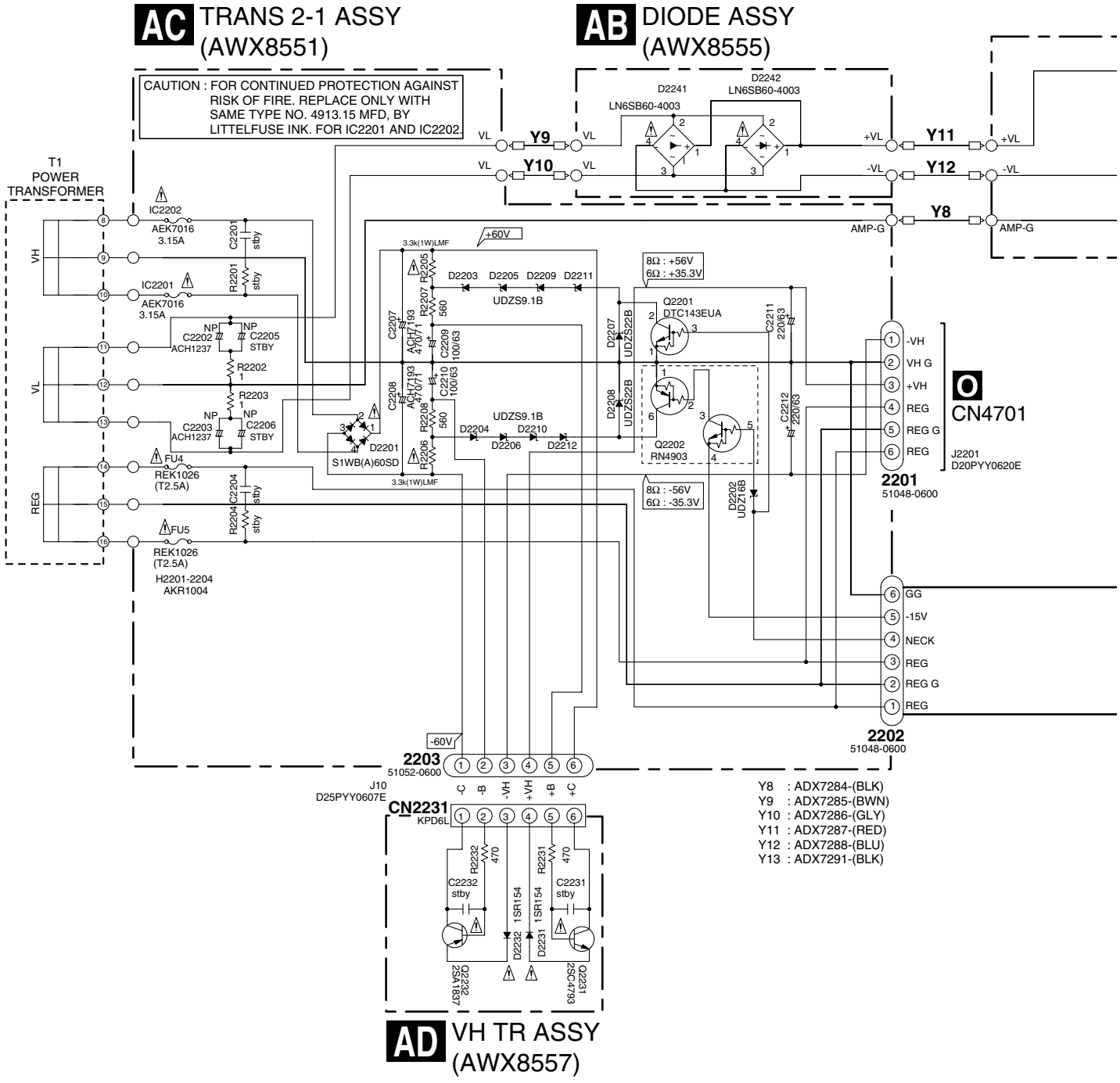



J 3/3 CN1
J 3/3 CN2
CN2415
KP250NA3
GNDA
GNDA
GNDA
CN2414
XKP3064
V-15V
V+15V
V+5.6
NC
ST5.6
WAKE UP
TG
V+12
GNDU
V+12T
+12V
V-15A
V+15A
V+5_6U
V+5_6ST
TG
GND
REG.REF_G
KN2403
VNF1084
W2449
STBY
CN2413
XKP3069
12VDET
12VTRG
EXPCK
EXPDT
EXP ST
EXP OE
I2 CCK
I2 CDT
OSDRT
OSDCS
OSDDT
OSDCK
FUNC
DEMRST
DEMSTP
DEMLCK
USBPB
USBSS
12V DET
12V TRG
EXP CK
EXP DT
EXP ST
EXP OE
I2 CDT
I2 CCK
OSD RT
OSD CS
OSD DT
OSD CK
FUNC
DEM RST
DEMSTP
DEMLCK
USBPB
USBSS
NC
J 3/3 CN502
VF
FLAC1
FLAC2
OPTG
OPT
OPT5V
V+5D
OPT
J 3/3 CN3
CN2412
XKP3063
CN2411
XKP3063
GND
94CS
94CK
94RT
94DI
94DO
94INT
1394CS
1394CK
1394RST
1394DI
1394DO
1394INT
J 3/3 CN351
CN2410
XKP3070
DSDM
MUTE
DACS
DMD2
D2CS
D2RT
DHRQ2
DDO
DCK
DDI
DMD1
D1CS
DHRQ1
D1RT
DACRT
DIRERR
DIRDI
DIRCK
DIRDO
DIRCS
DIRRT
DSDM
MUTE
DACCS
DSPMODE2
DSP2CS
DSP2RST
DSP2HREQ
DSPDO
DSPCLK
DSPDI
DSPMODE1
DSP1CS
DSP1HREQ
DSP1RST
DACRST
DIRERR
DIRDTI
DIRCLK
DIRDTO
DIRCS
DIRRST
J 3/3 CN302
R2497
4X51
STBY
C2447
STBY
C2446
100p
KN2402
VNF1084
C2499
0.01
V-15A
V+15A
V+5AD
V+5I
V+5D
94CS
94CK
94RT
94DI
94DO
94INT
DIRRT
DIRCS
DIRDO
DIRCK
DIRDI
DIRERR
DACRT
D1RT
IECS
IECK
IERT
IEDI
IEDO
IEIT
G
G
NC
DRRT
DRCS
DRDO
CLK
DATA
ERR
ADRT
D1RT
CN2407
XKP3068
M CN1652
DHRQ1
D1CS
D1MD
DDI
DCK
DDO
DHRQ2
D2RT
D2CS
DMD2
DACS
MUTE
DSDM
OPT
NC
D1RQ
D1CS
D1MD
DSDI
DSCK
DSDO
D2RQ
D2RT
D2CS
D2MD
DACS
MUTE
DSDM
G
OPTIN
G
CN2408
XKP3068
M CN1653
+15V
+15V
G
G
-15V
-15V
A5V
A5V
ARET
ARET
V1394
V1394
D5V
D5V
DRET
DRET
DRET
CN2409
XKP3068
M CN1654

# 3.22 SP/PS, DIODE, TRANS 2-1 and VH TR ASSYS

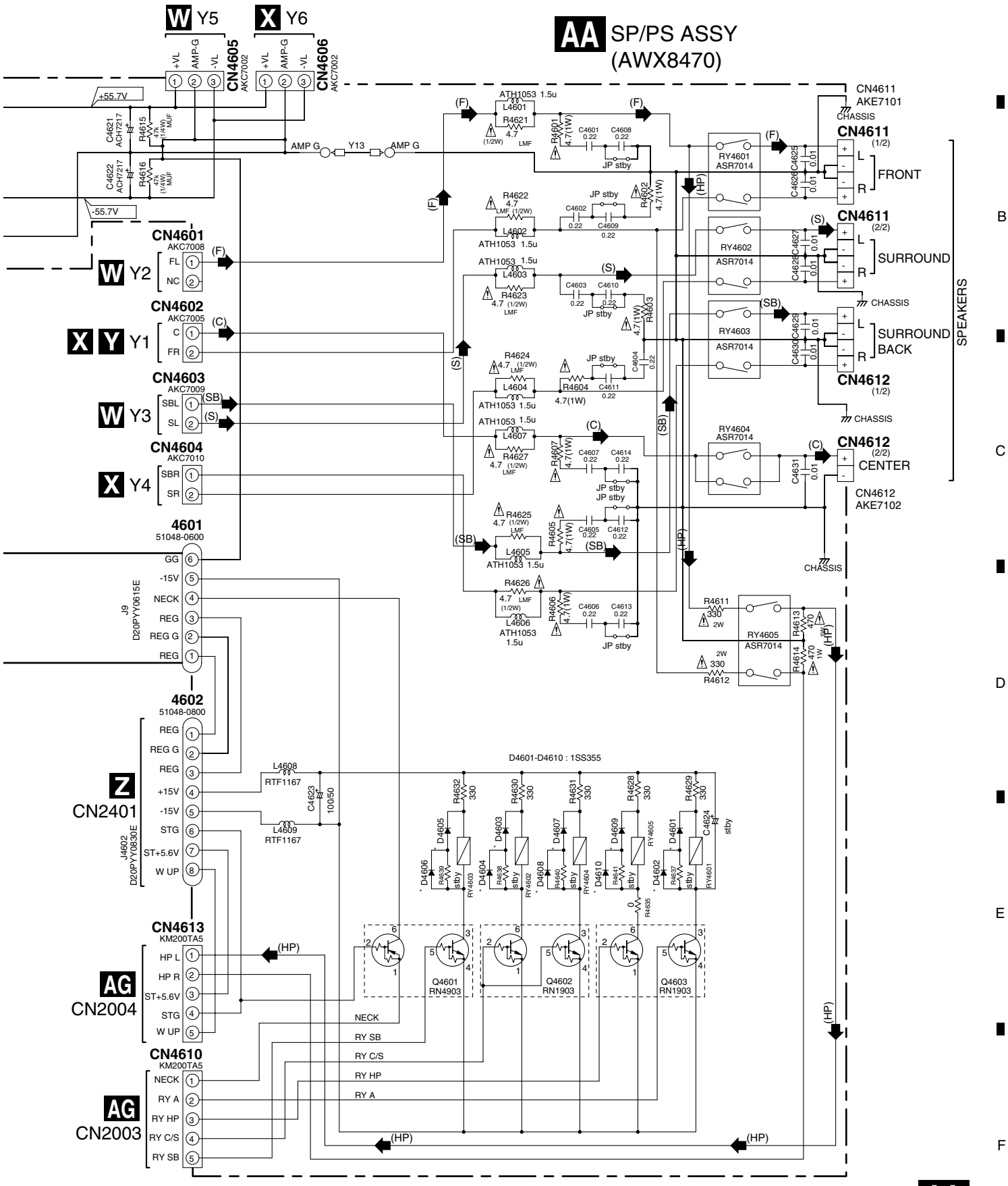
• NOTE FOR FUSE REPLACEMENT

**CAUTION -** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.




(F) : AUDIO SIGNAL ROUTE (FRONT Lch)
(S) : AUDIO SIGNAL ROUTE (SURROUND Lch)
(SB) : AUDIO SIGNAL ROUTE (SURROUND BACK Lch)
(C) : AUDIO SIGNAL ROUTE (CENTER ch)
(HP) : AUDIO SIGNAL ROUTE (PHONES ch)

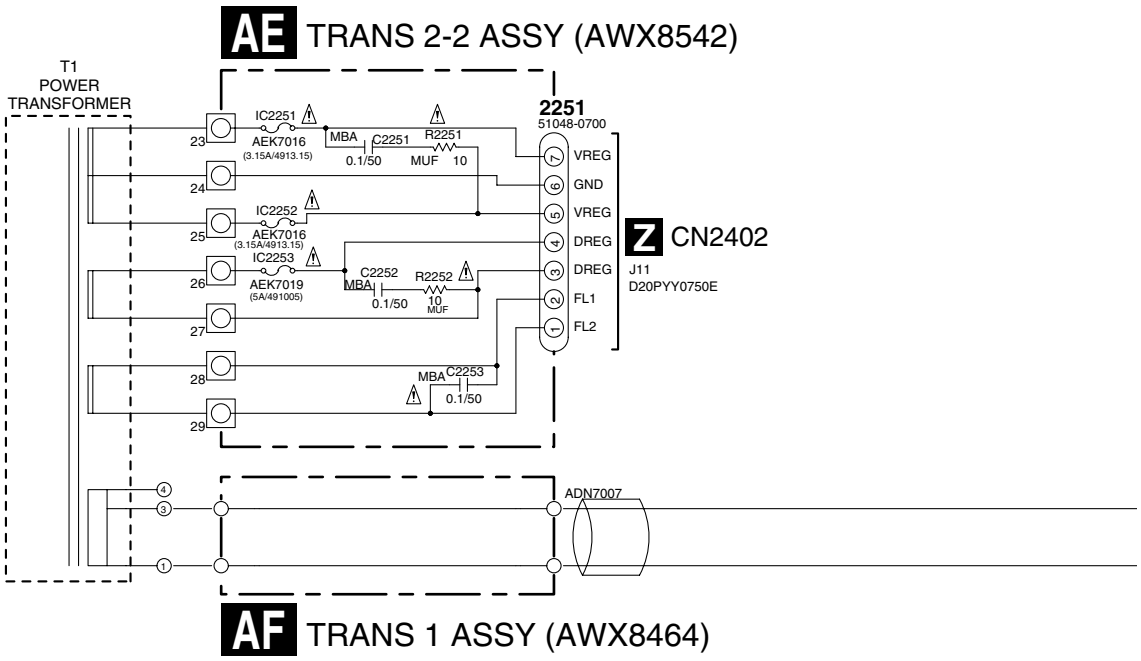
**AA AB AC AD**


AA SP/PS ASSY
(AWX8470)
W Y5
X Y6
CN4605
AKC7002
CN4606
AKC7002
+VL
AMP-G
-VL
+55.7V
-55.7V
AMP G
Y13
CN4601
AKC7008
FL
NC
W Y2
CN4602
AKC7005
C
FR
X Y Y1
CN4603
AKC7009
SBL
SL
W Y3
CN4604
AKC7010
SBR
SR
X Y4
4601
51048-0600
GG
-15V
NECK
REG
REG G
REG
J9
D20PYY0615E
4602
51048-0800
+15V
STG
ST+5.6V
W UP
J4602
D20PYY0830E
Z
CN2401
CN4613
KM200TA5
HP L
HP R
AG
CN2004
CN4610
NECK
RY A
RY HP
RY C/S
RY SB
AG
CN2003
CN4611
AKE7101
CHASSIS
CN4611 (1/2)
FRONT
CN4611 (2/2)
SURROUND
SURROUND BACK
CN4612 (1/2)
CN4612 (2/2)
CENTER
CN4612
AKE7102
SPEAKERS
RY4601 ASR7014
RY4602 ASR7014
RY4603 ASR7014
RY4604 ASR7014
RY4605 ASR7014
ATH1053 1.5u
JP stby
D4601-D4610 : 1SS355
Q4601 RN4903
Q4602 RN1903
Q4603 RN1903
RTF1167
(F)
(S)
(SB)
(C)
(HP)

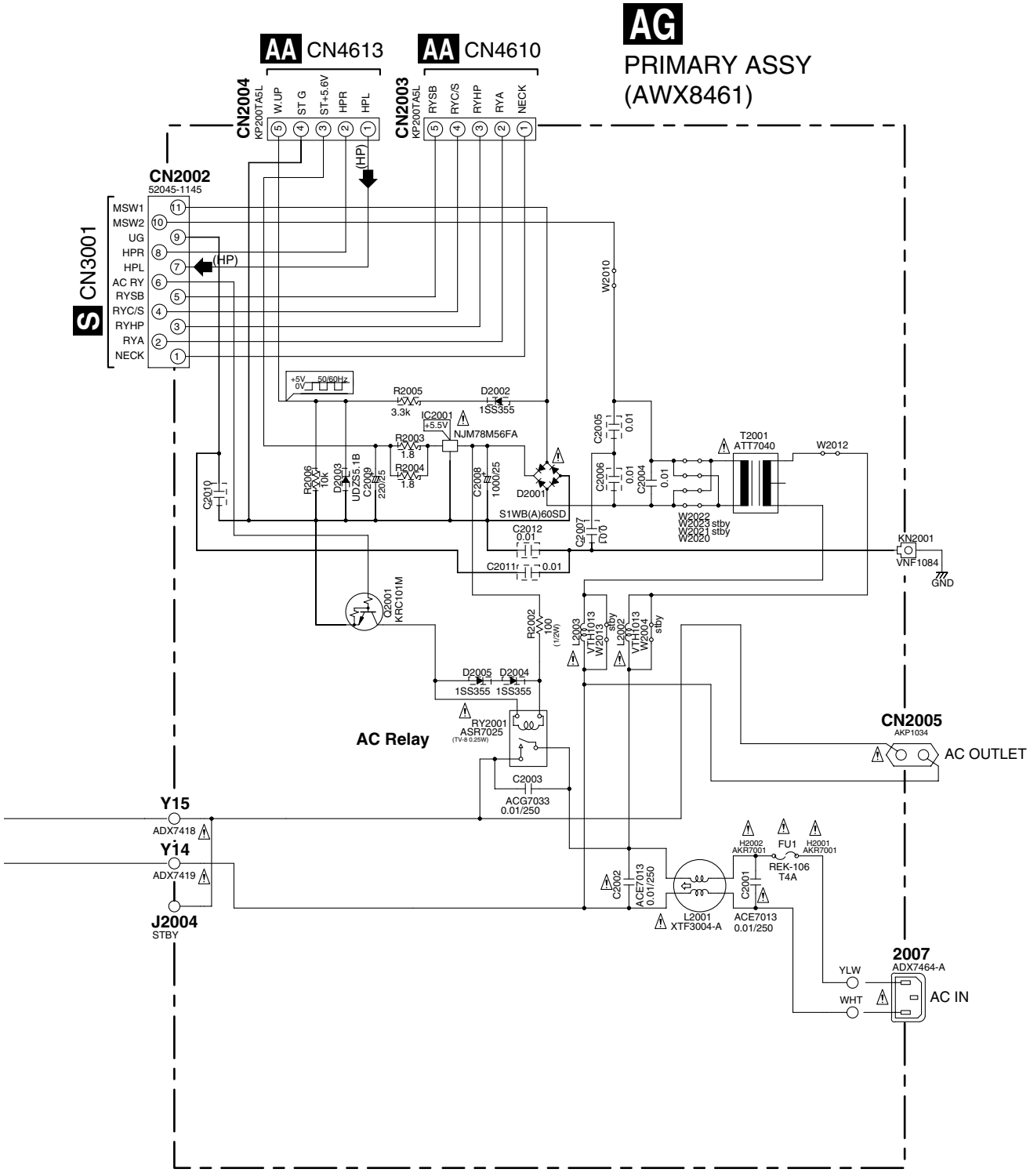
# 3.23 TRANS 2-2, TRANS 1 and PRIMARY ASSYS

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 4913.15 MFD, BY LITTELFUSE INK. FOR IC2251 AND IC2252.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491005 MFD, BY LITTELFUSE INK. FOR IC2253.



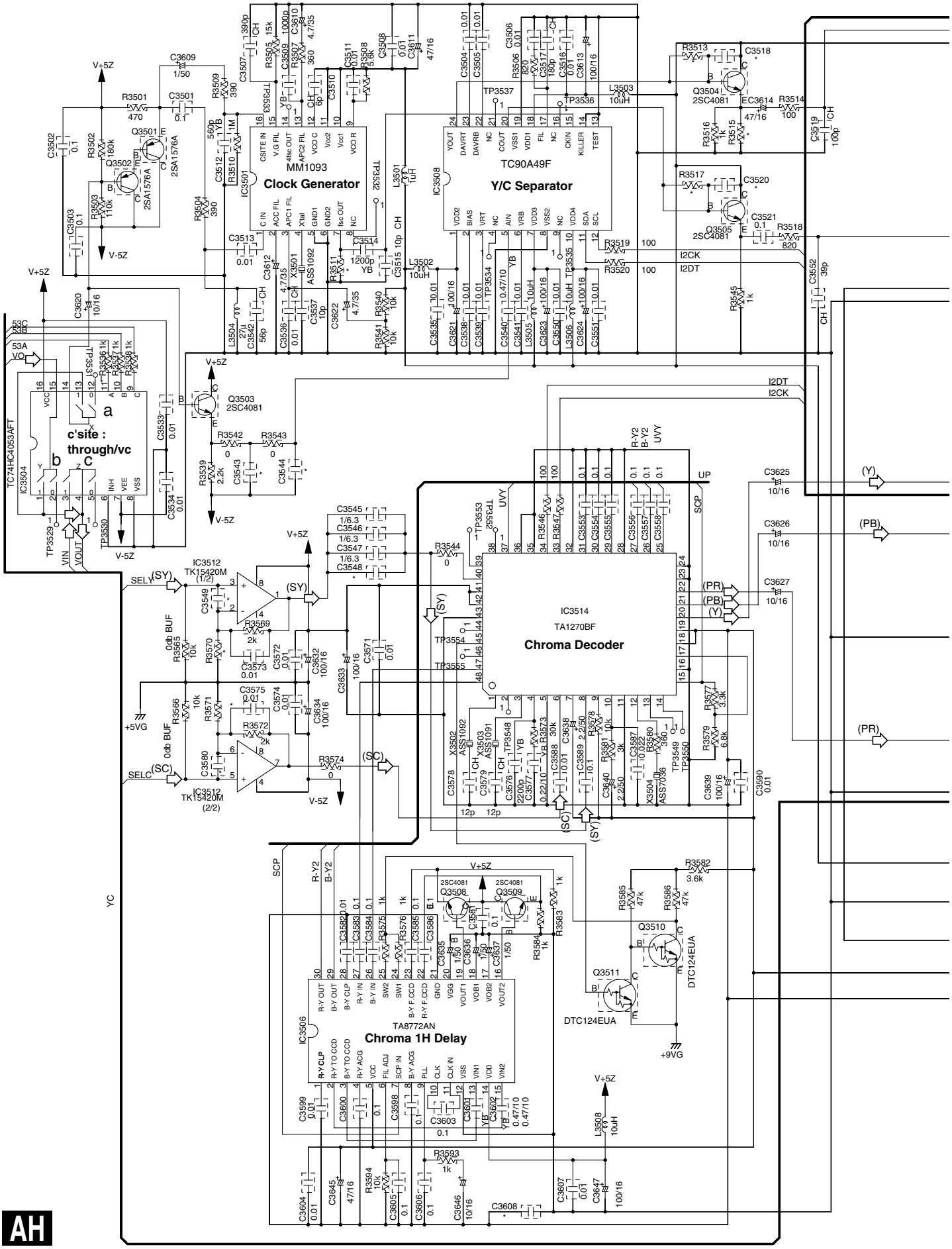
(HP) : AUDIO SIGNAL ROUTE (PHONES ch)



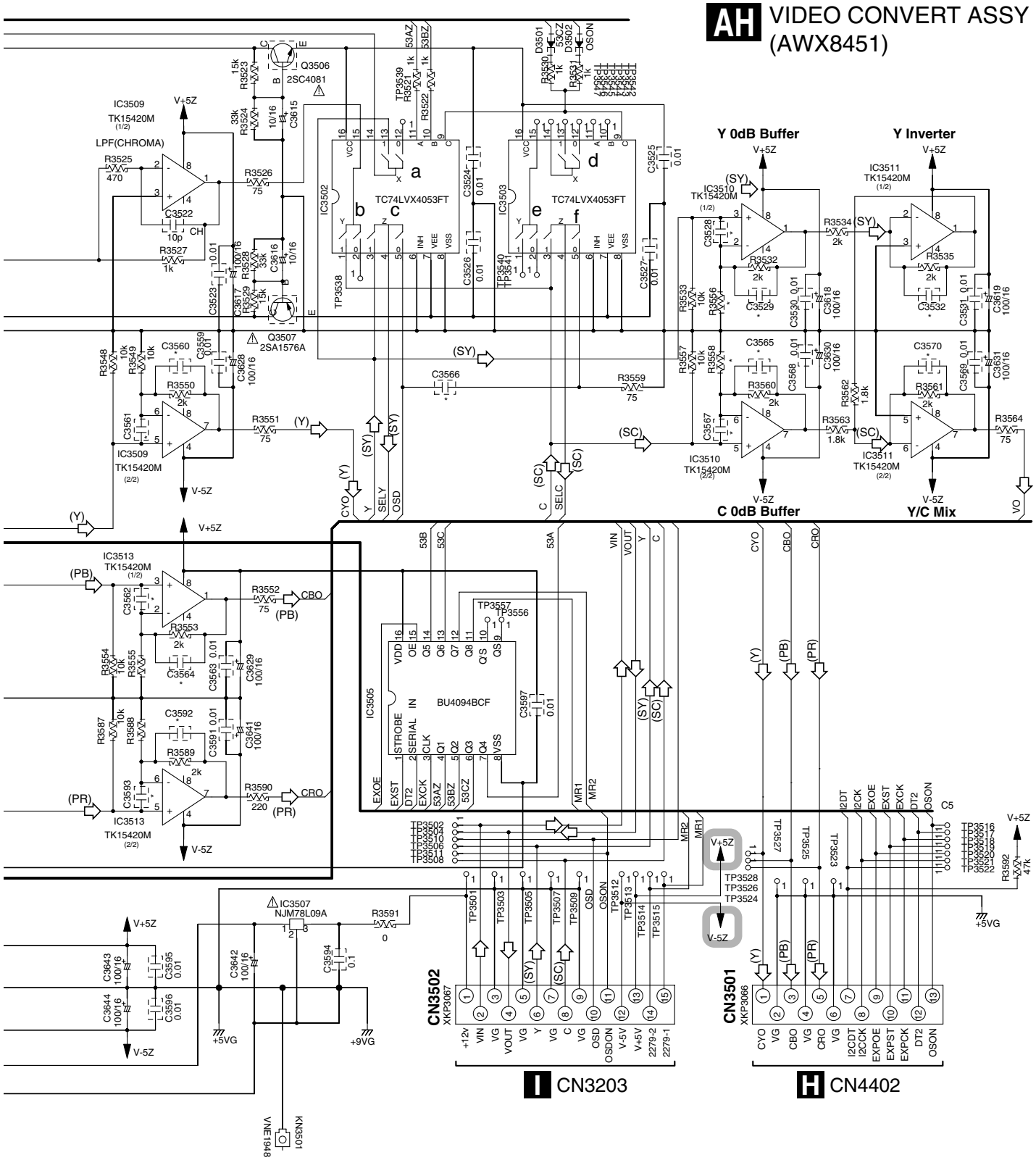

• NOTE FOR FUSE REPLACEMENT

**CAUTION -** FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.

# 3.24 VIDEO CONVERT ASSY



# AH VIDEO CONVERT ASSY (AWX8451)




: VIDEO SIGNAL ROUTE
(SY) : VIDEO SIGNAL ROUTE (S VIDEO Y ch)
(SC) : VIDEO SIGNAL ROUTE (S VIDEO C ch)
(Y) : VIDEO SIGNAL ROUTE (Y)
(PB) : VIDEO SIGNAL ROUTE ($P_B$)
(PR) : VIDEO SIGNAL ROUTE ($P_R$)

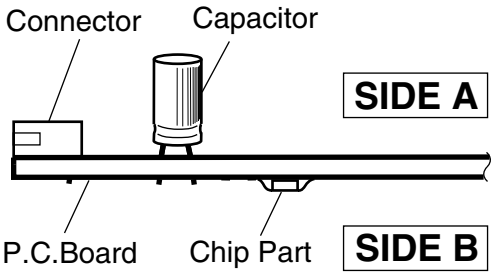
# 4. PCB CONNECTION DIAGRAM

## NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

| Symbol In PCB Diagrams | Symbol In Schematic Diagrams | Part Name |
|---|---|---|
| B C E | B C E B C E | Transistor |
| B C E | B C E B C E | Transistor with resistor |
| D G S | D G S D G S | Field effect transistor |
| | | Resistor array |
| | | 3-terminal regulator |

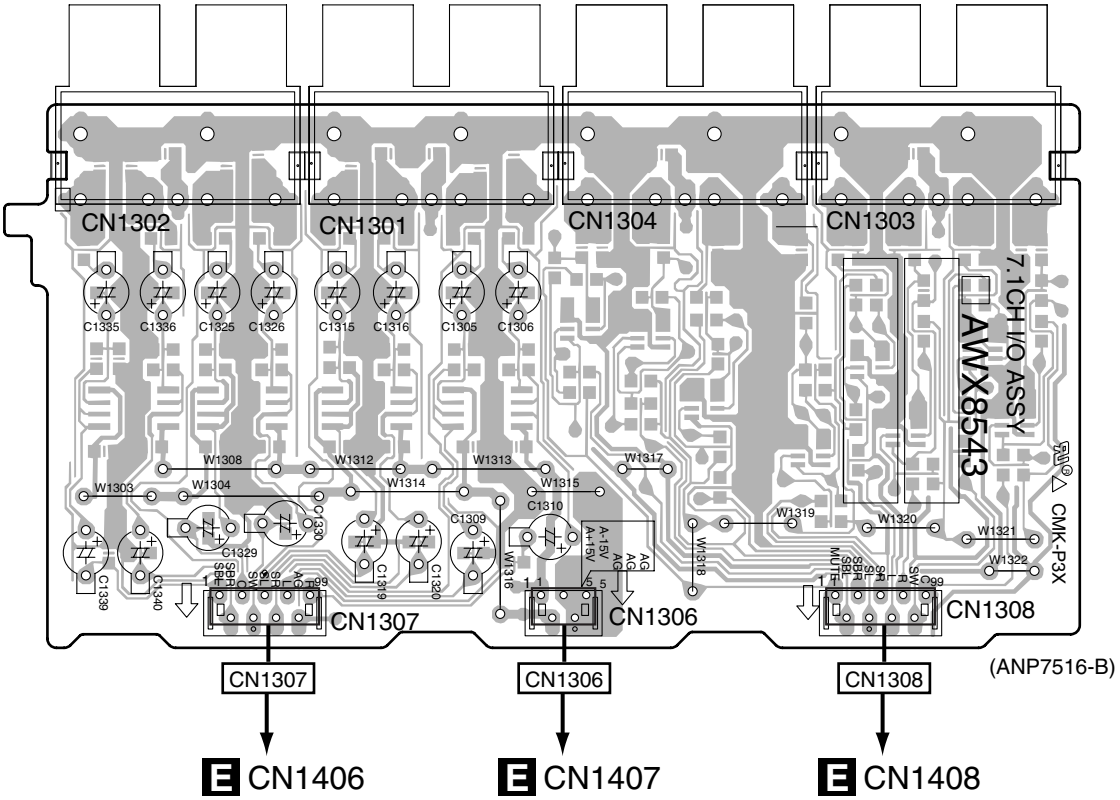
3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



## 4.1 7.1CH I/O ASSY

**SIDE A**

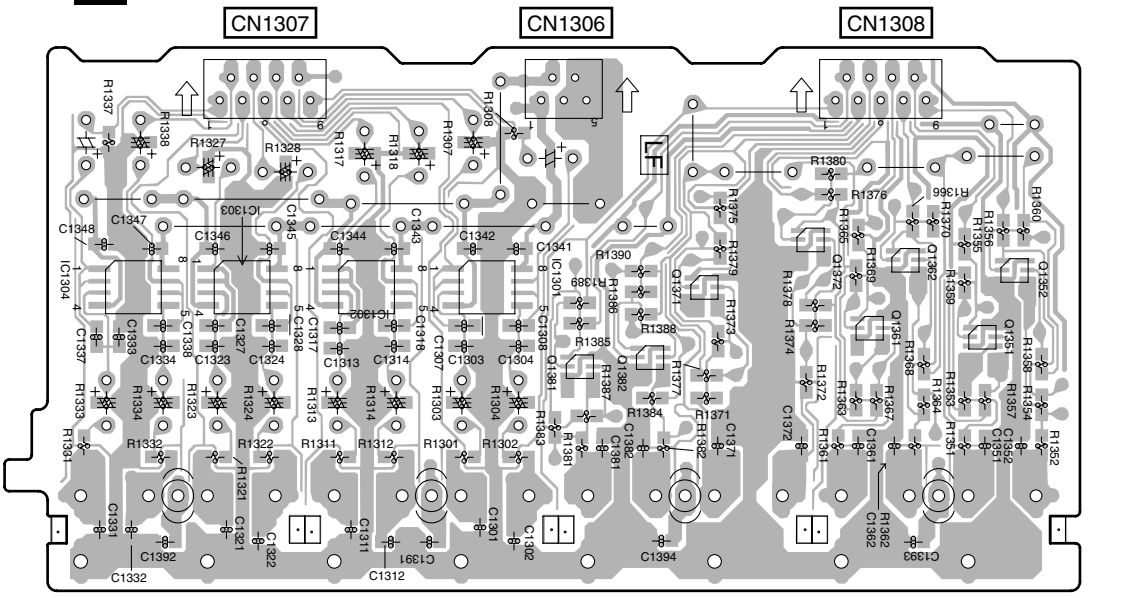
**A** 7.1CH I/O ASSY




**SIDE A**

**SIDE B**

**A** 7.1CH I/O ASSY




**SIDE B**

IC1304 IC1303 IC1302 IC1301 Q1371 Q1372 Q1362 Q1352
Q1381 Q1382 Q1361 Q1351

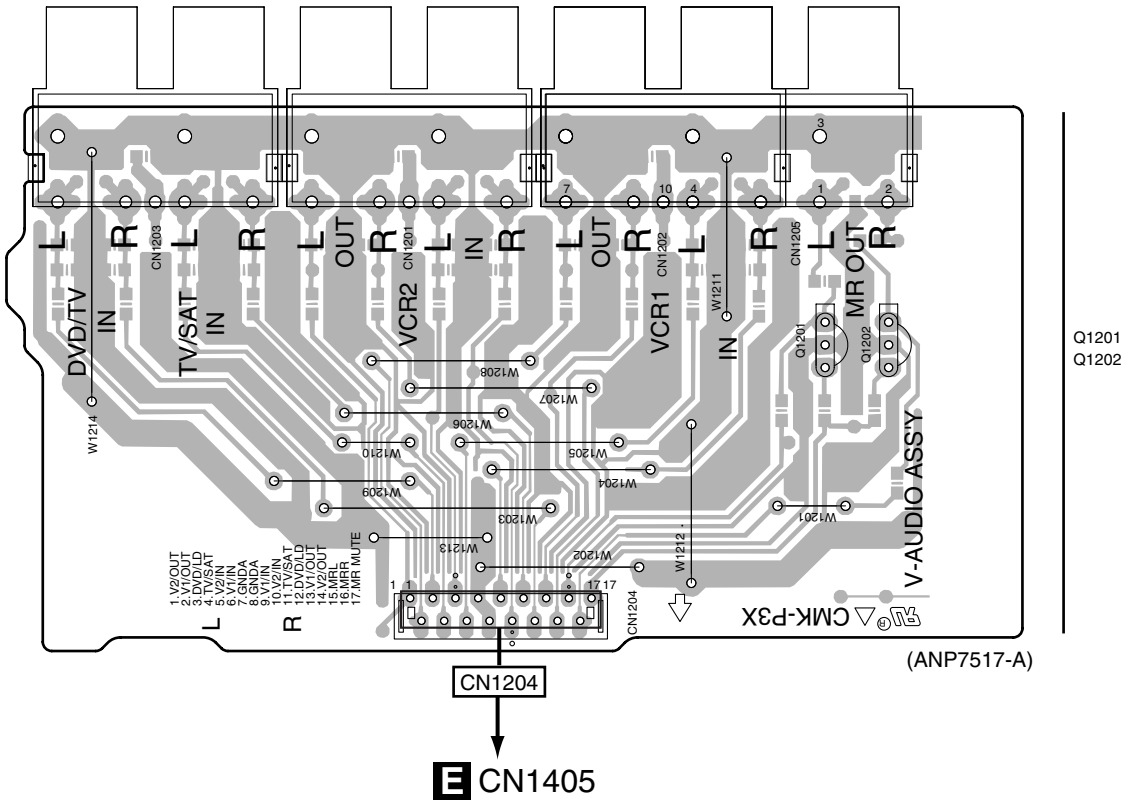
**A** **A**

## 4.2 V-AUDIO IN ASSY

**SIDE A**

**SIDE A**

**B** V-AUDIO IN ASSY



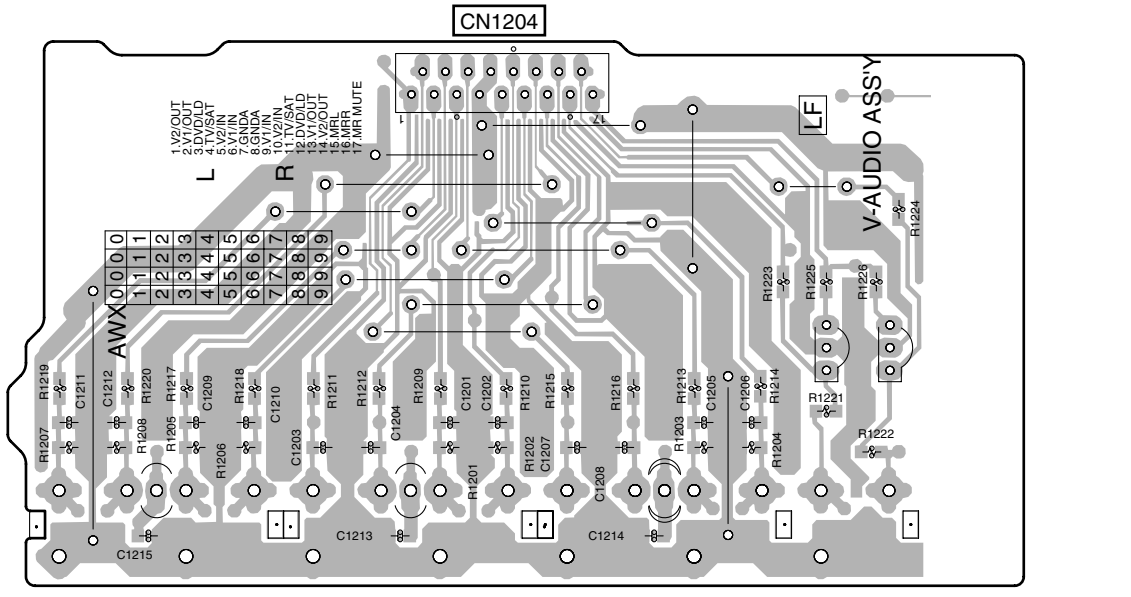

CN1204

**E** CN1405

**SIDE B**

**SIDE B**

**B** V-AUDIO IN ASSY




**B** **B**

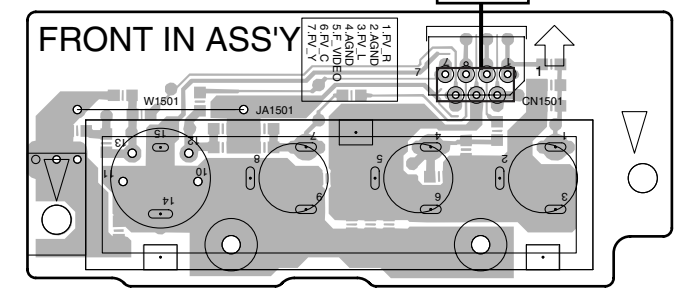
## 4.3 FRONT IN and OPTICAL IN ASSYS

**SIDE A**

**SIDE A**

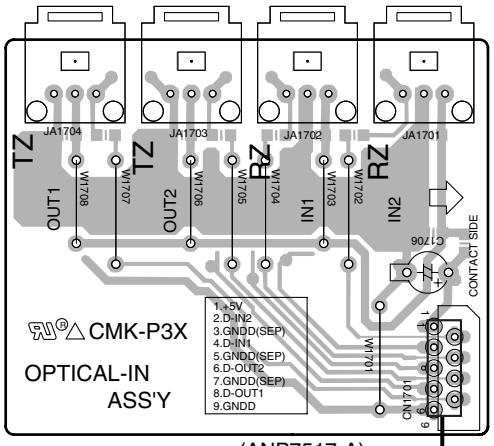
**S** CN3005

**C** FRONT IN ASSY




(ANP7517-A)

**D** OPTICAL IN ASSY




(ANP7517-A)

CN1701

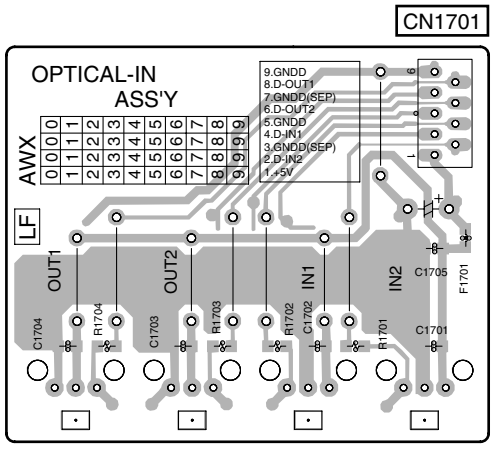
**G** CN1801

**SIDE B**

**SIDE B**

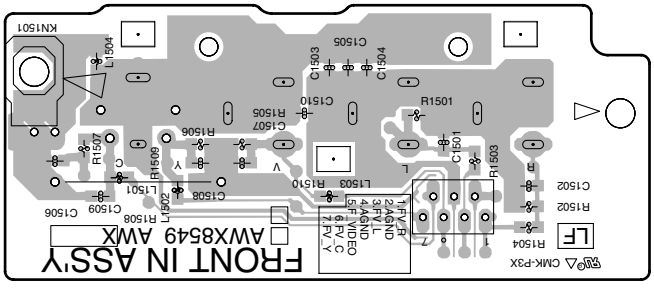
**D** OPTICAL IN ASSY

CN1701




(ANP7517-A)

**C** FRONT IN ASSY




CN1501

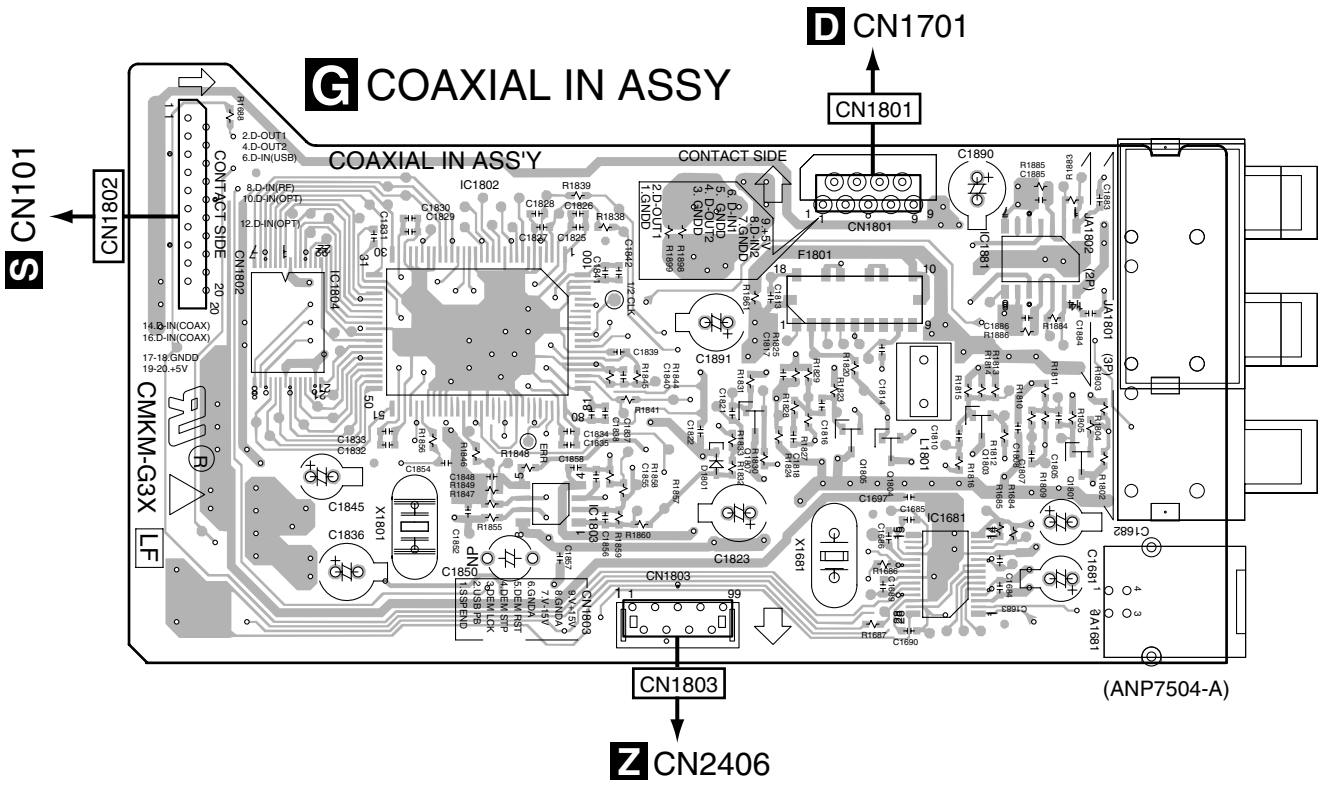
(ANP7517-A)

**C** **D**

**C** **D**

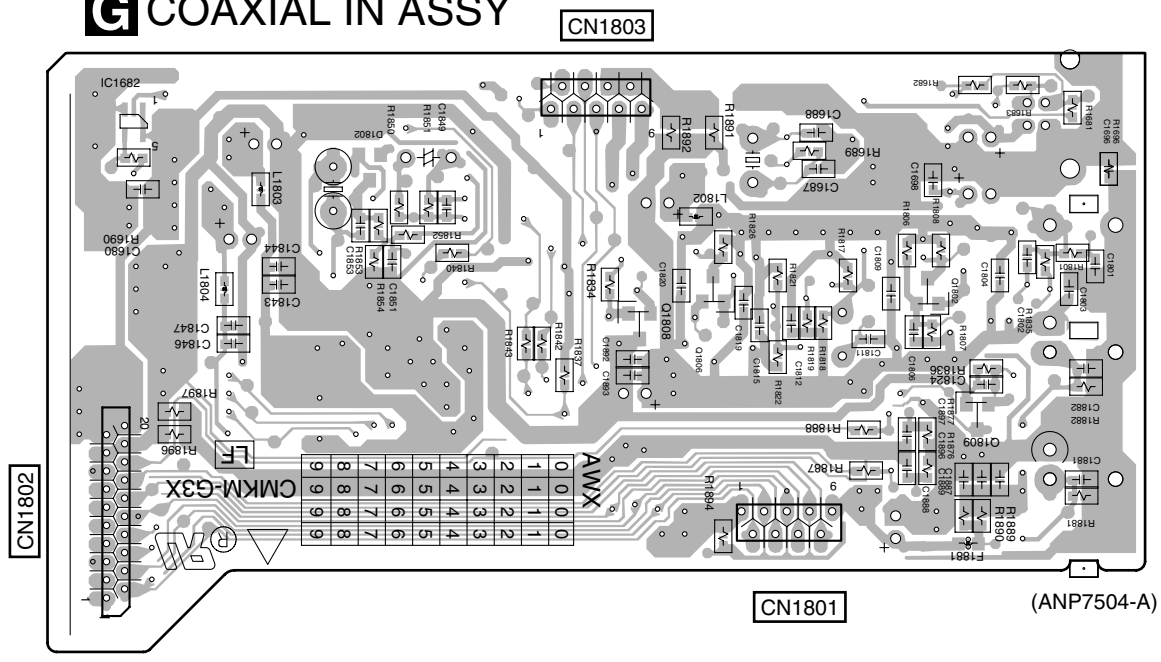
## 4.4 COAXIAL IN ASSY

**SIDE A**




IC1804 IC1802 IC1803 Q1807 Q1805 Q1804 Q1803 Q1801 IC1881 IC1681

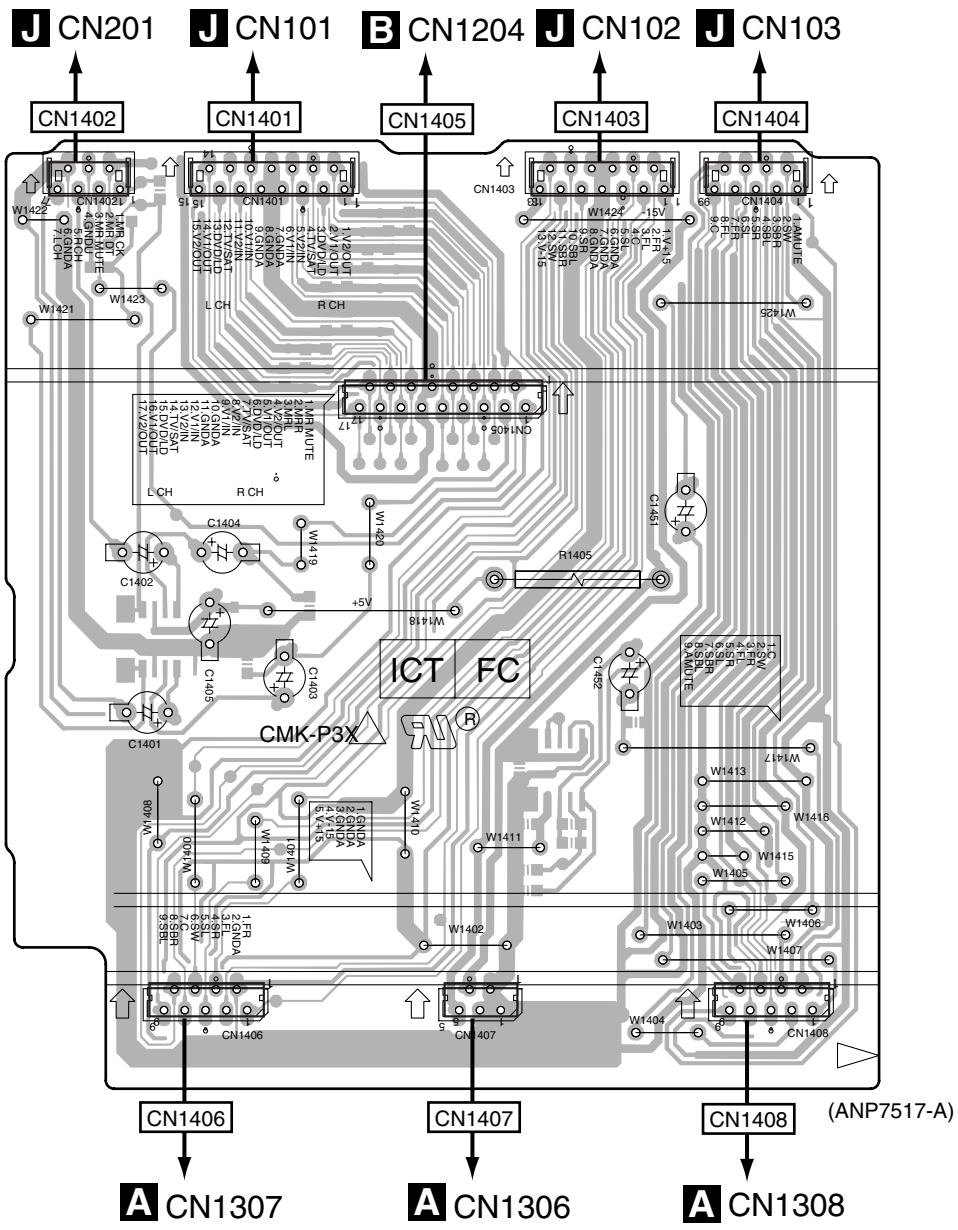
**SIDE B**



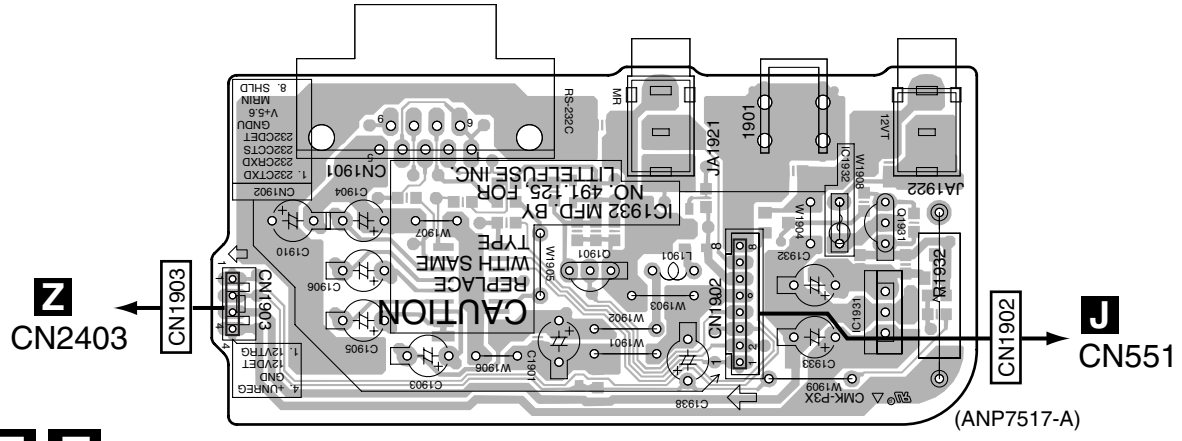

IC1682 Q1808 Q1806 Q1802 Q1809

## 4.5 INPUT CONNECT and 12V TRIGGER ASSYS

**SIDE A** **E** INPUT CONNECT ASSY **SIDE A**



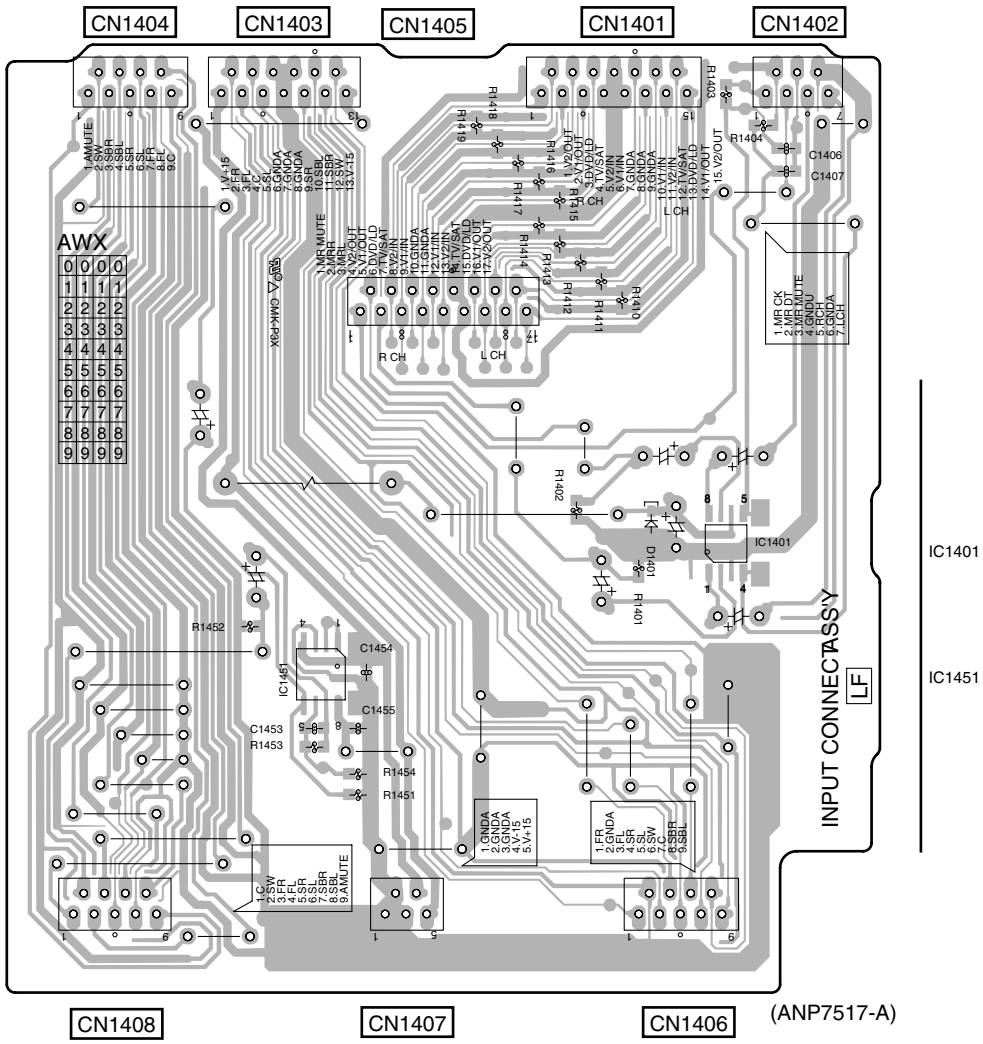

**F** 12V TRIGGER ASSY




**E F** **E F**

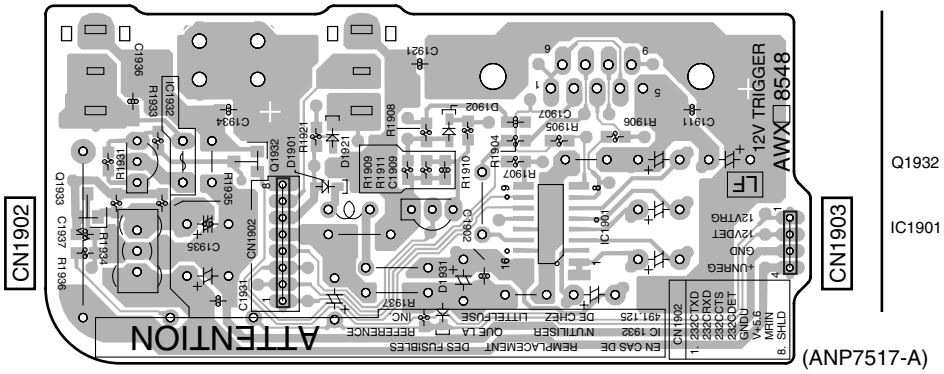
SIDE B

# E INPUT CONNECT ASSY




(ANP7517-A)

# F 12V TRIGGER ASSY



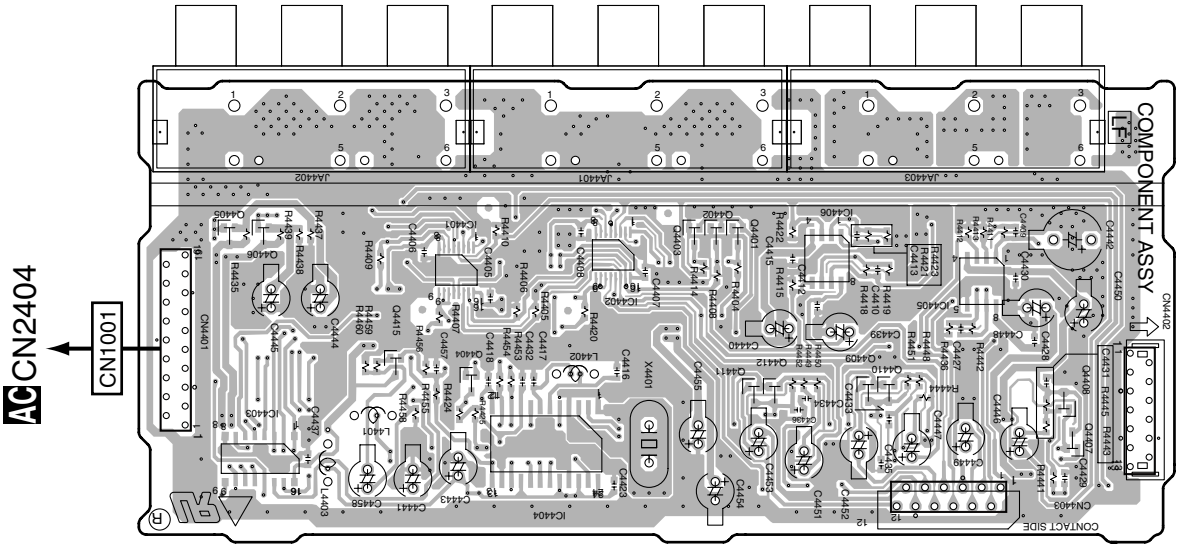

(ANP7517-A)

## 4.6 COMPONENT ASSY

**SIDE A**

**SIDE A**

### H COMPONENT ASSY



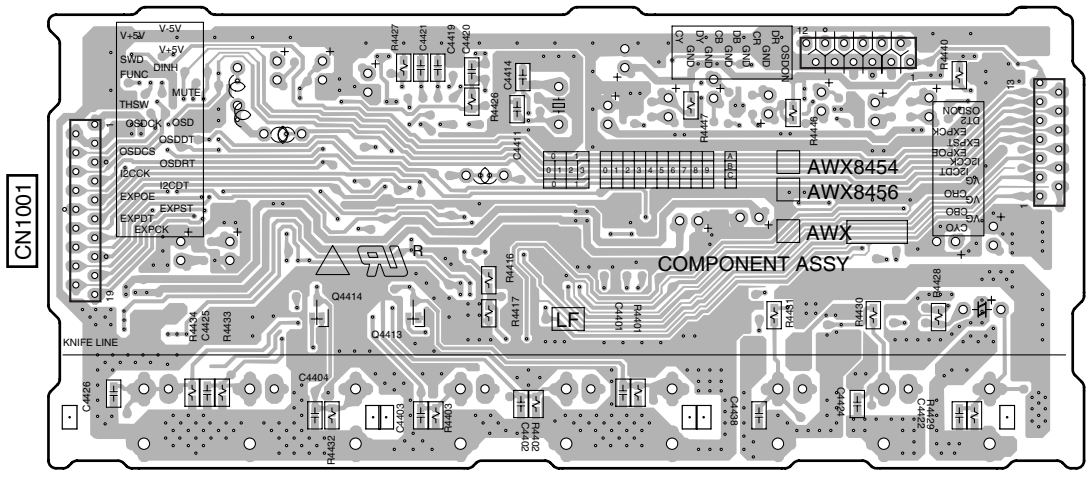

(ANP7505-A)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | IC4403 | IC4404 | Q4402 | Q4401 | Q4409 | IC4405 | Q4407 |
| Q4405 | Q4406 | IC4402 | Q4413 | Q4411 | Q4410 | | Q4408 |
| | | | | Q4412 | IC4406 | | |

**SIDE B**

**SIDE B**

### H COMPONENT ASSY




(ANP7505-A)

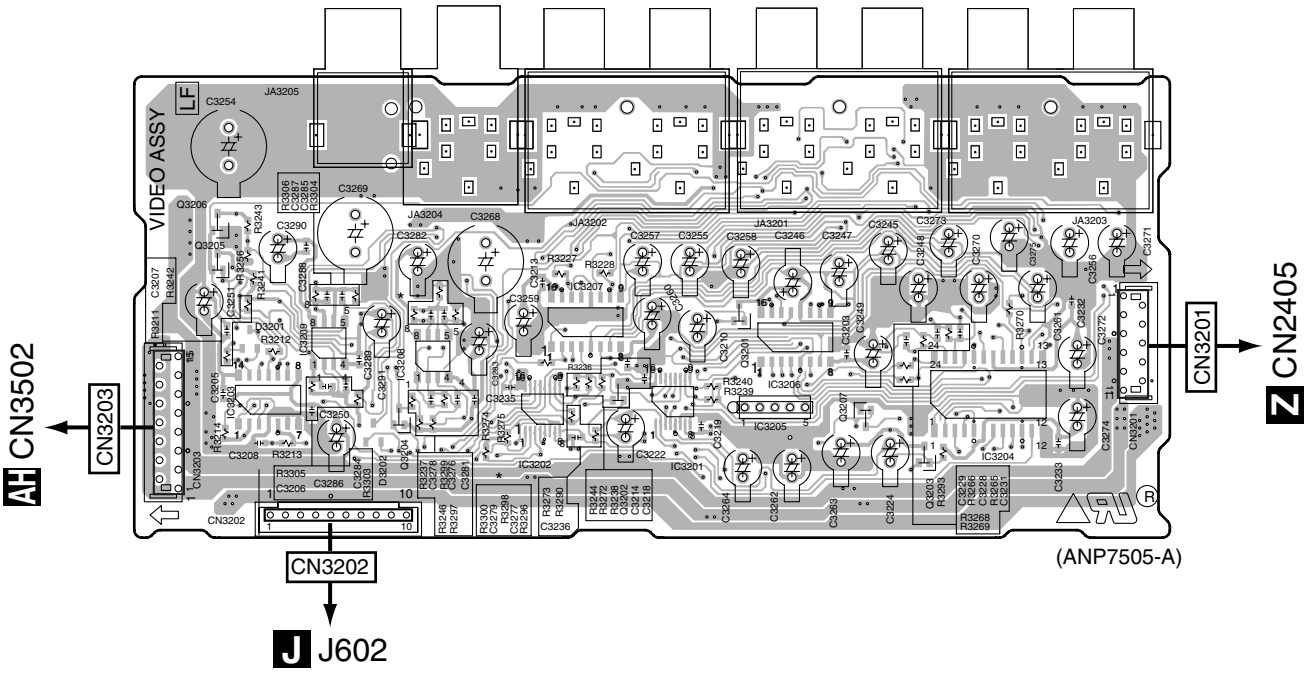
Q4414 Q4413

# 4.7 VIDEO ASSY

**SIDE A**

**SIDE A**

## I VIDEO ASSY

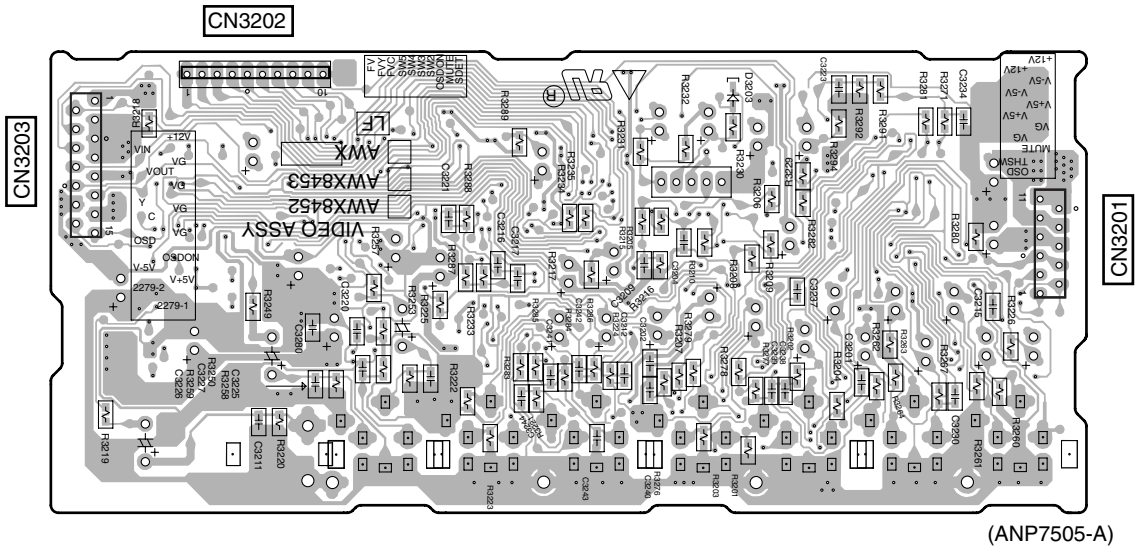



Q3205 Q3206 | IC3209 | IC3208 | IC3202 IC3207 | Q3202 | IC3201 | IC3205 IC3206 | Q3207

**SIDE B**

**SIDE B**

## I VIDEO ASSY



A

B

C

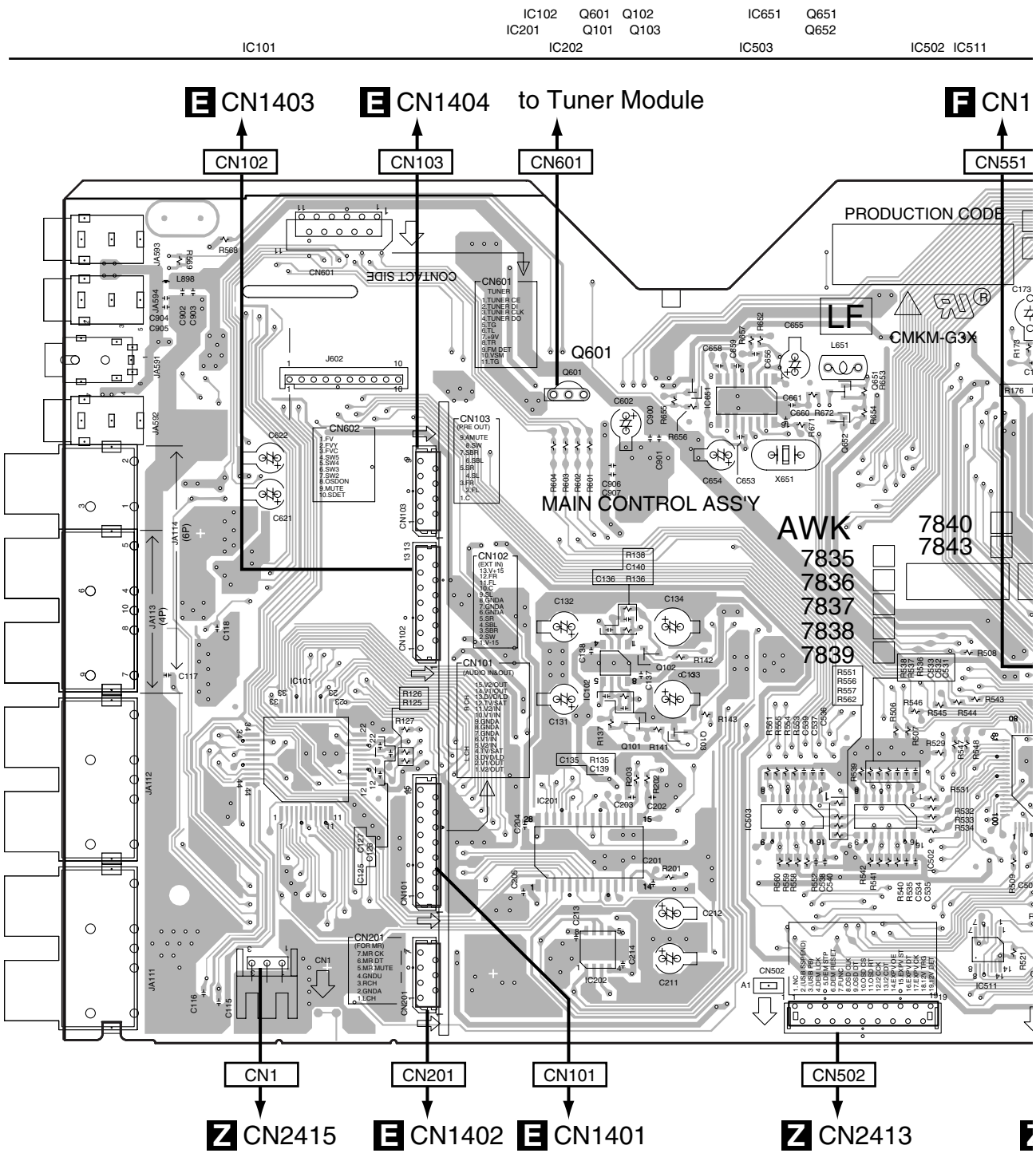
D

E

F

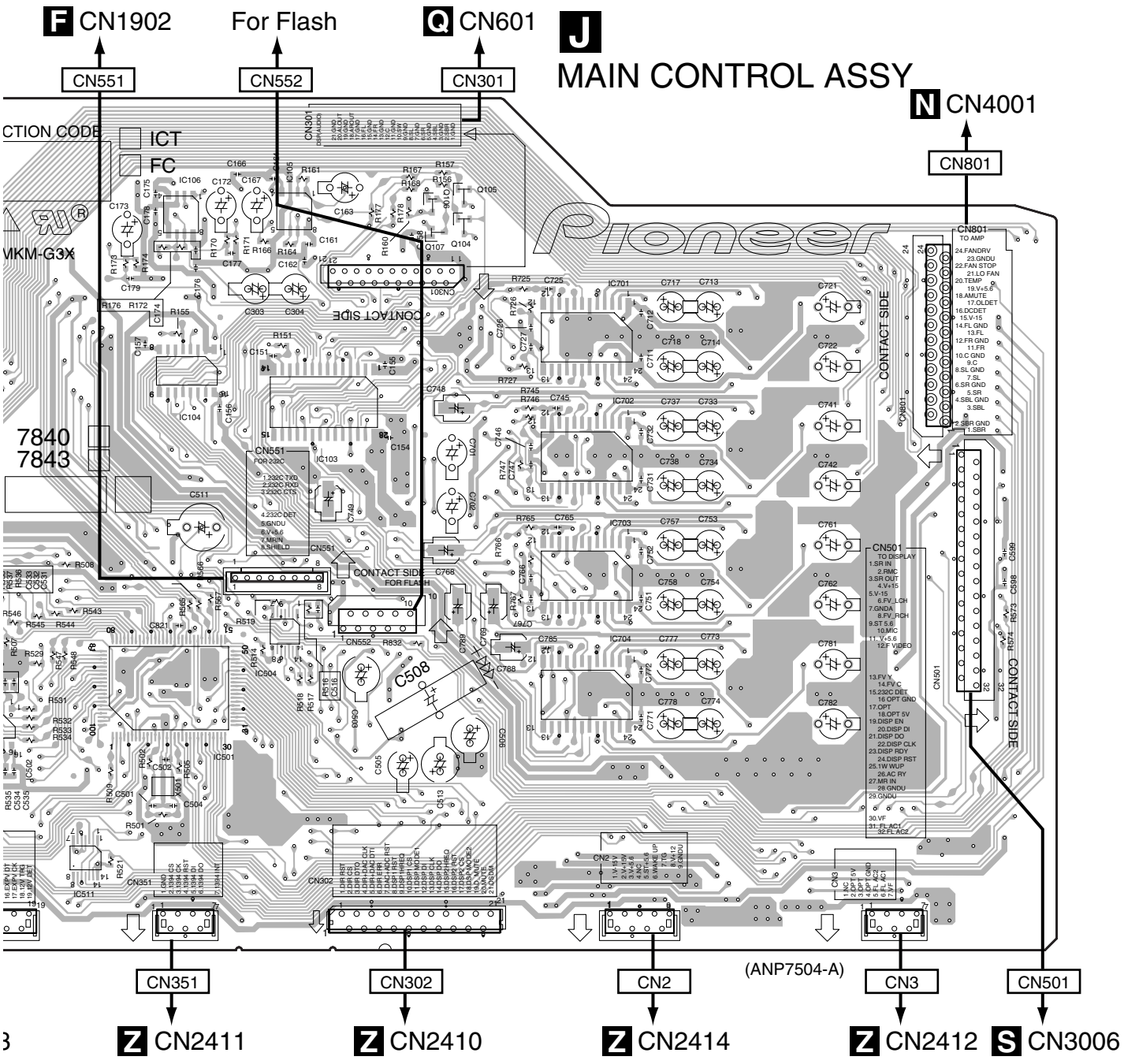
# 4.8 MAIN CONTROL ASSY

**SIDE A**



**SIDE A**

IC502 IC511 IC501 IC104 IC106 IC504 IC105 IC103 Q107 Q104 Q106 Q105 IC702 IC701 IC704 IC703

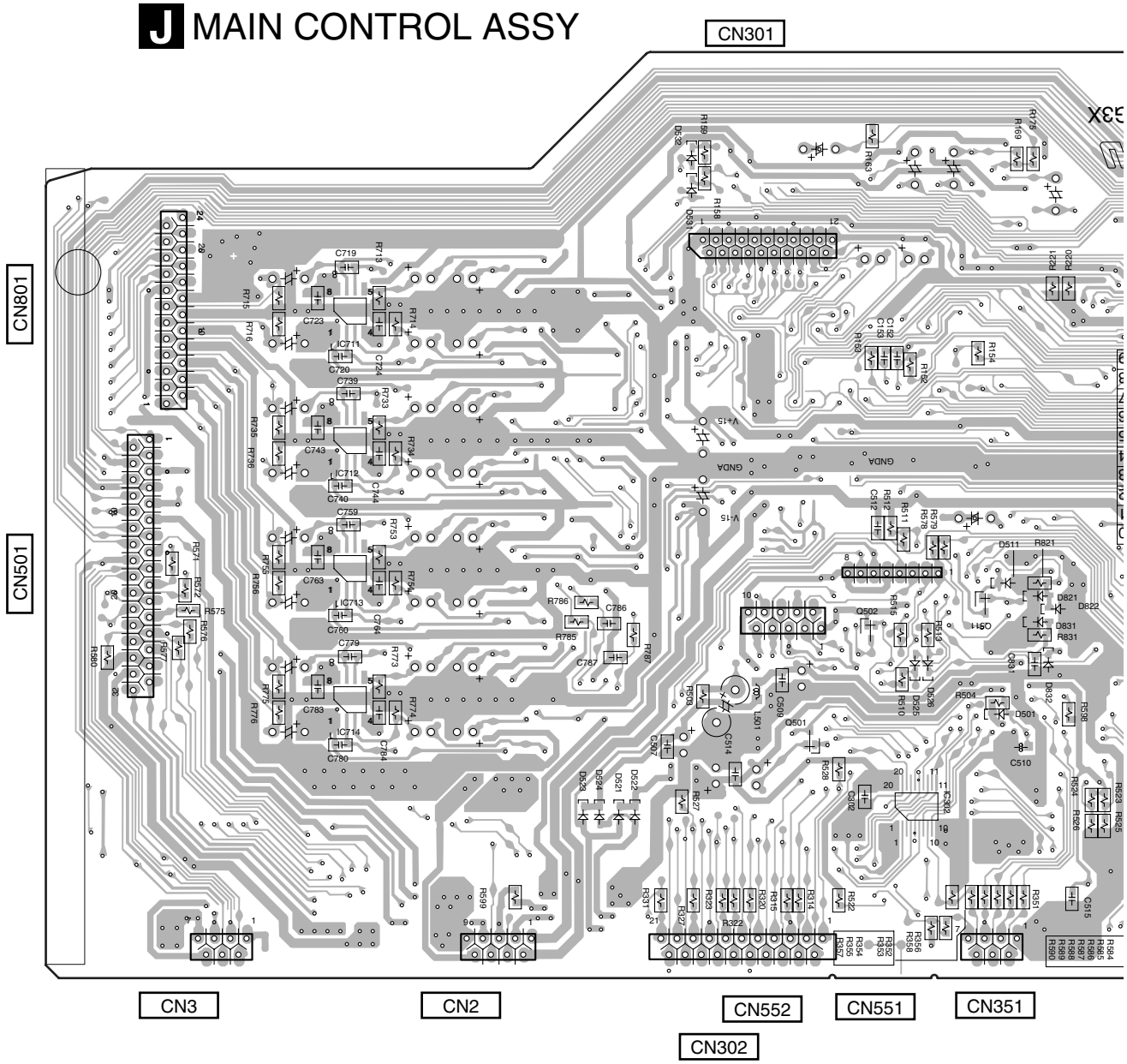


**SIDE B**

IC711
IC712
IC713
IC714

Q501 IC302 Q511

# J MAIN CONTROL ASSY



**SIDE B**

A

B

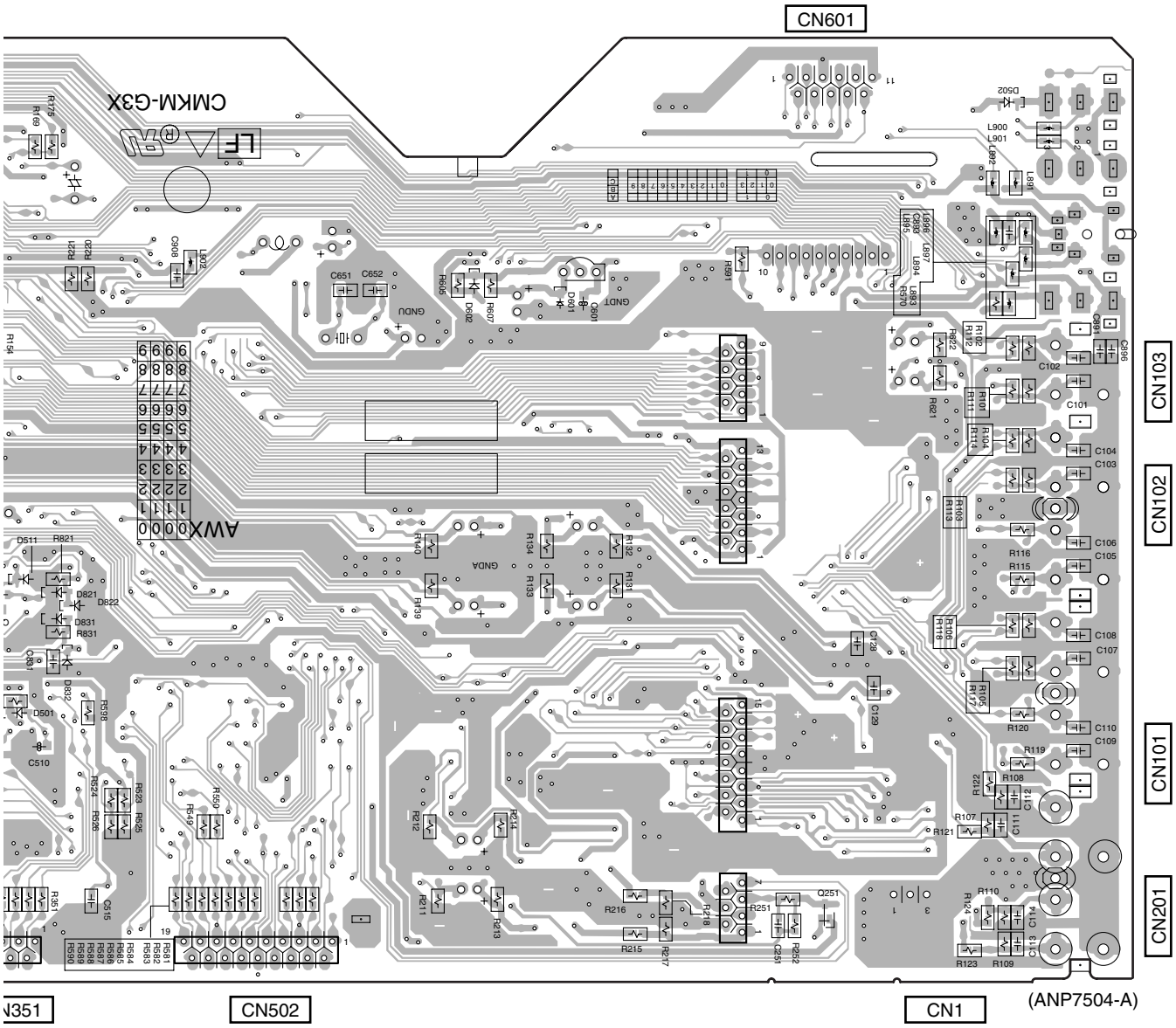
C

D

E

F

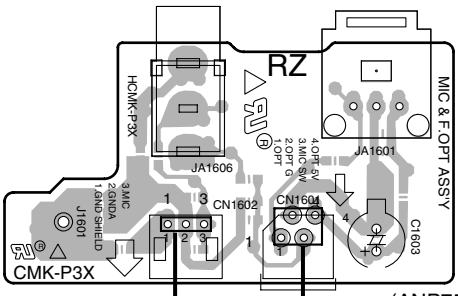
Q251



# 4.9 MIC & F. OPT IN, MIC AMP and DSP CONNECTION ASSYS

**SIDE A** **SIDE A**

## K MIC & F.OPT IN ASSY

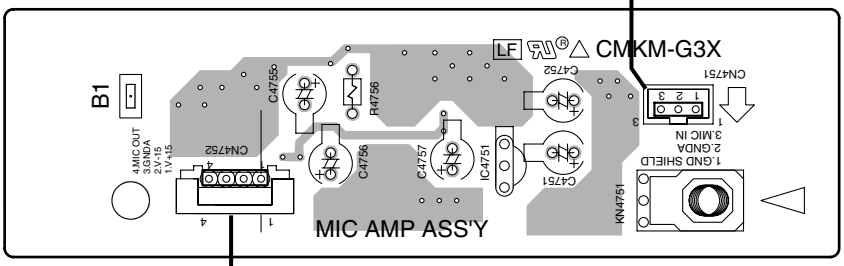



CN1602 CN1601

S CN3004

## L MIC AMP ASSY

CN4751




CN4752

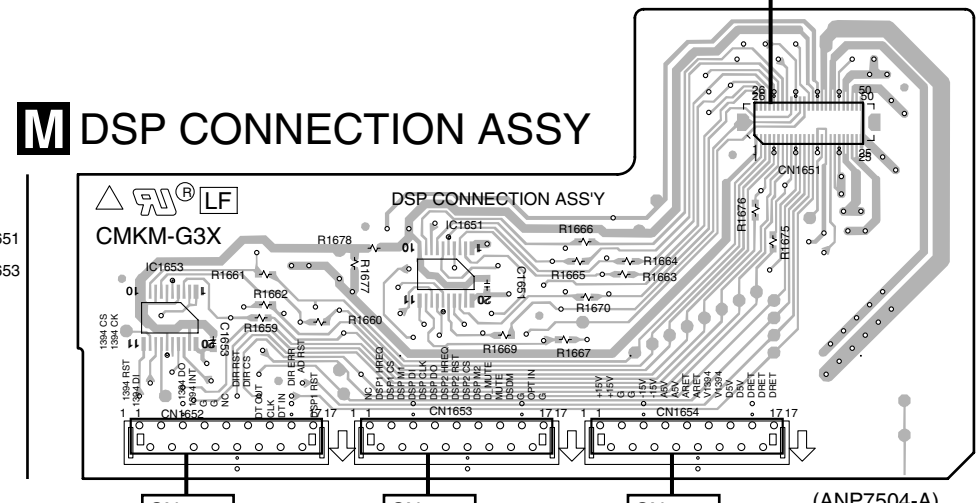
IC4751

S 3008

## M DSP CONNECTION ASSY

Q CN102

CN1651




CN1652 CN1653 CN1654

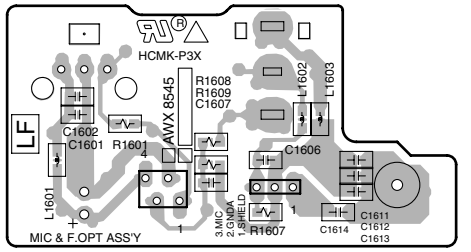
Z CN2407 Z CN2408 Z CN2409

**K L M** **K L M**

SIDE B

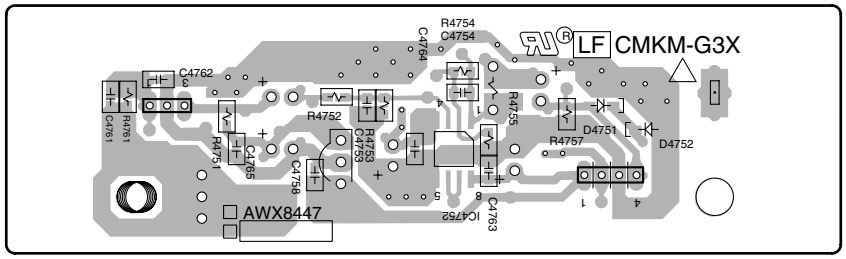
SIDE B

## K MIC & F.OPT IN ASSY




CN1601 CN1602 (ANP7516-B)

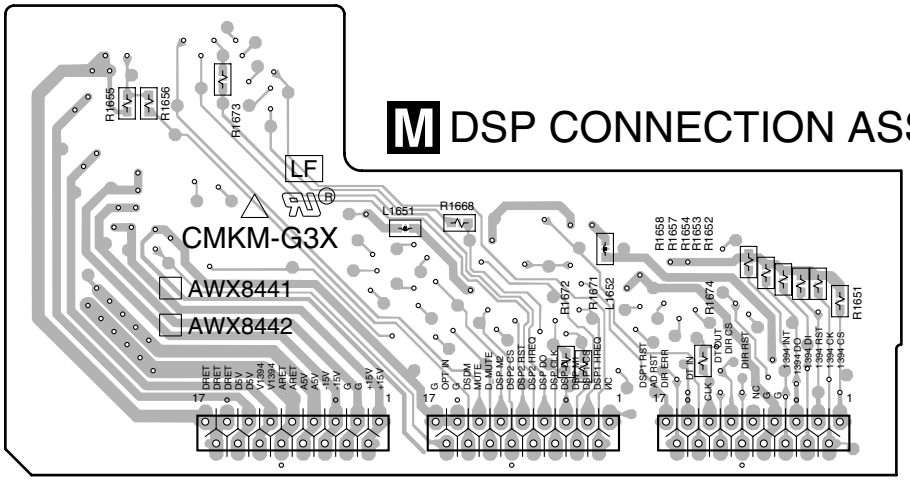
## L MIC AMP ASSY




CN4752 (ANP7504-A)

IC4752

## M DSP CONNECTION ASSY



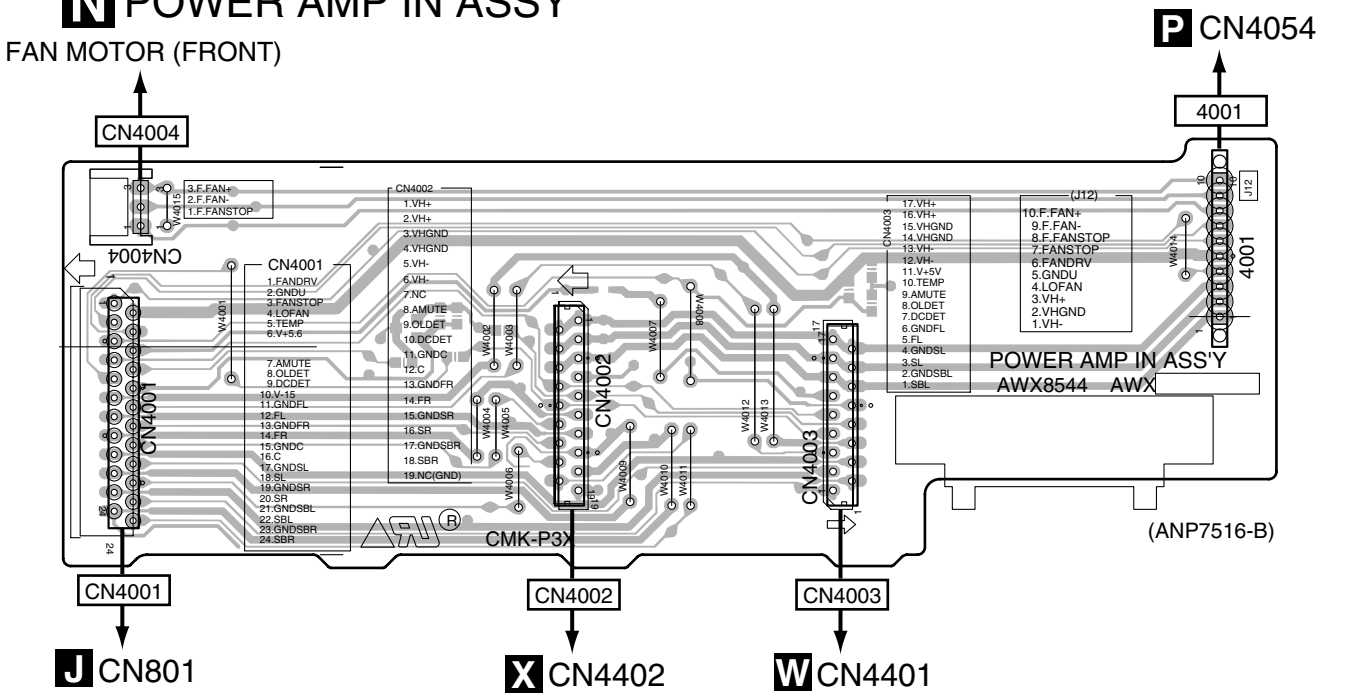

(ANP7504-A) CN1654 CN1653 CN1652

## 4.10 POWER AMP IN ASSY

A

**SIDE A** **SIDE A**

**N** POWER AMP IN ASSY



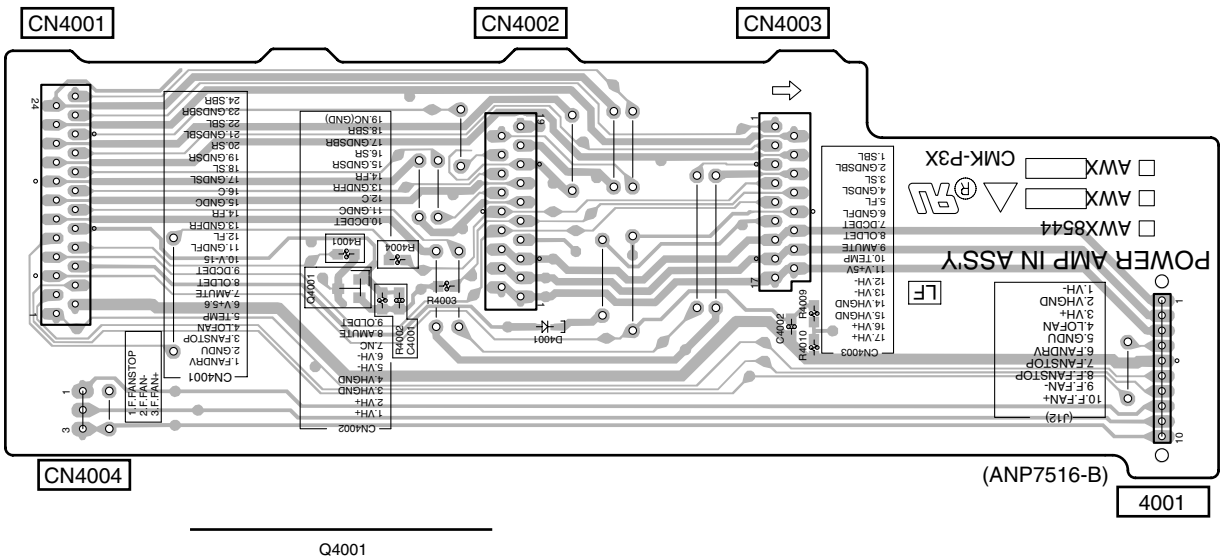

B

C

**SIDE B** **SIDE B**

D

**N** POWER AMP IN ASSY




E

F

**N** **N**

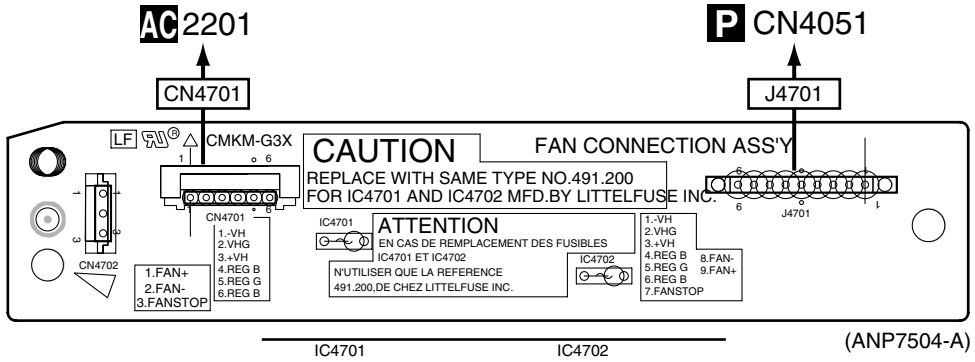
## 4.11 FAN CONNECTION ASSY

**SIDE A** **SIDE A**

A

B

### O FAN CONNECTION ASSY

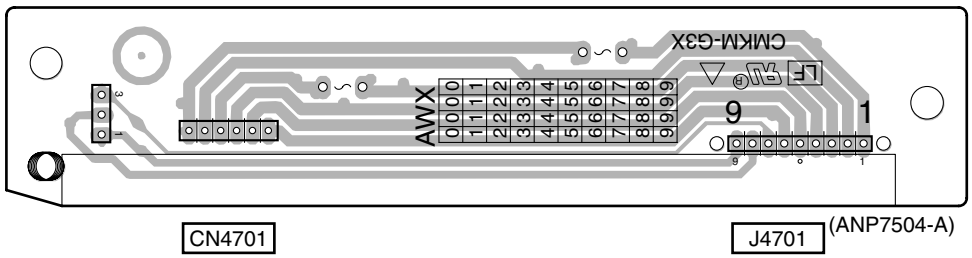



C

**SIDE B** **SIDE B**

D

### O FAN CONNECTION ASSY

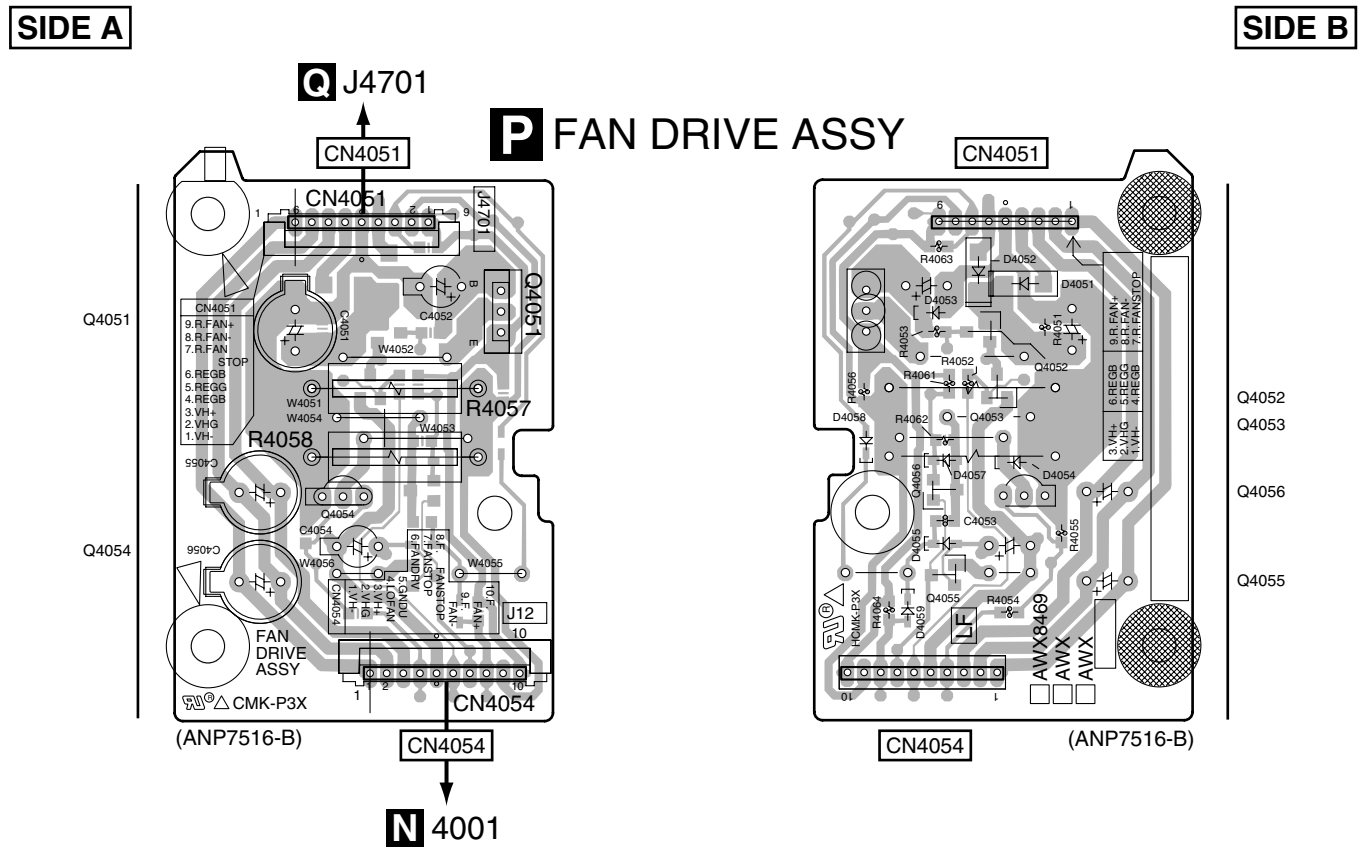



E

F

O O

## 4.12 FAN DRIVE ASSY



# 4.13 DSP ASSY

**SIDE A**

**SIDE A**

- This diagram has four layers.
  In the two middle layers, mainy Vcc and GND are connected.

**Q** DSP ASSY

**J** CN301

CN601

**M** CN1651

CN102

First Side(A)

AWX8249

AWX8489

1/4

DC FC

LF Pb

E88558(S)

IC901 IC561 IC621 IC521 IC471 IC301 IC305 IC302 IC306 IC304 IC701 IC201

Q971 Q972 Q684 IC661 Q683

CN101 CN702 CN701

(ANP7466-B)

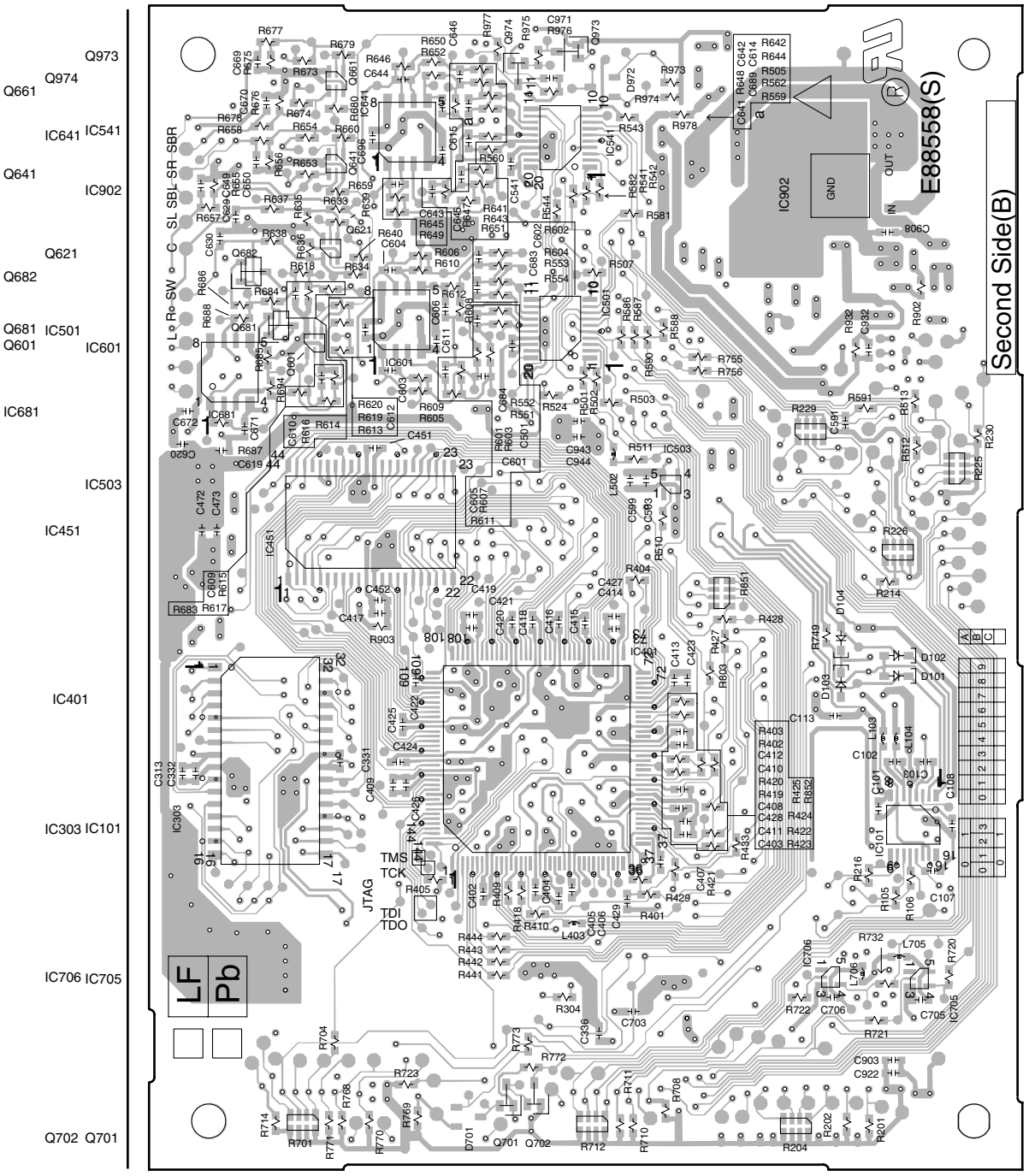
**G** CN1802 **R** CN402 **R** CN401

SIDE B

SIDE B

- This diagram has four layers.
  In the two middle layers, mainy Vcc and GND are connected.

# Q DSP ASSY

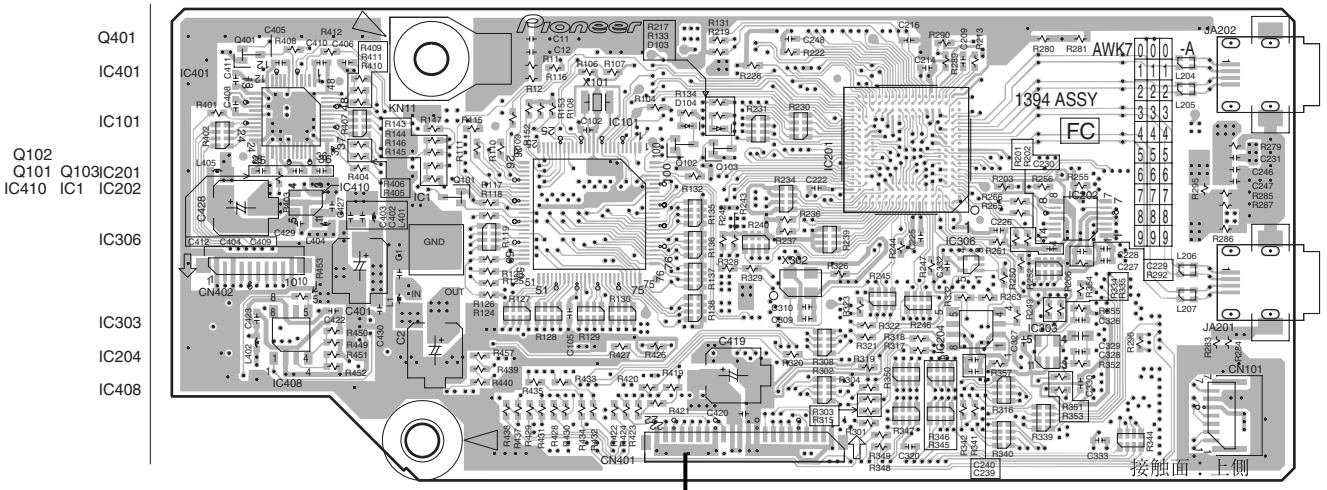



(ANP7466-A)

# 4.14 1394 ASSY

## R 1394 ASSY

**SIDE A**

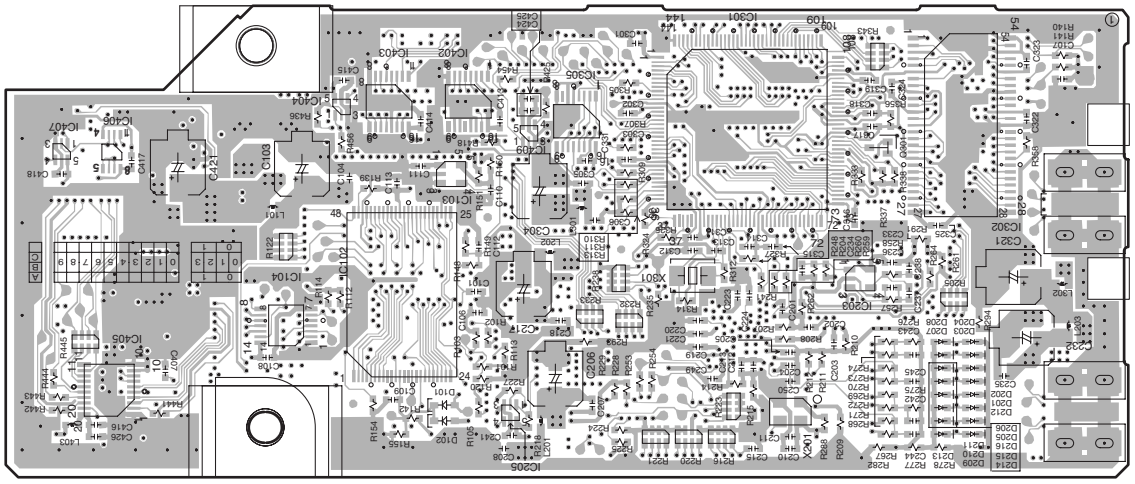



(ANP7489-A)

CN401

Q CN705

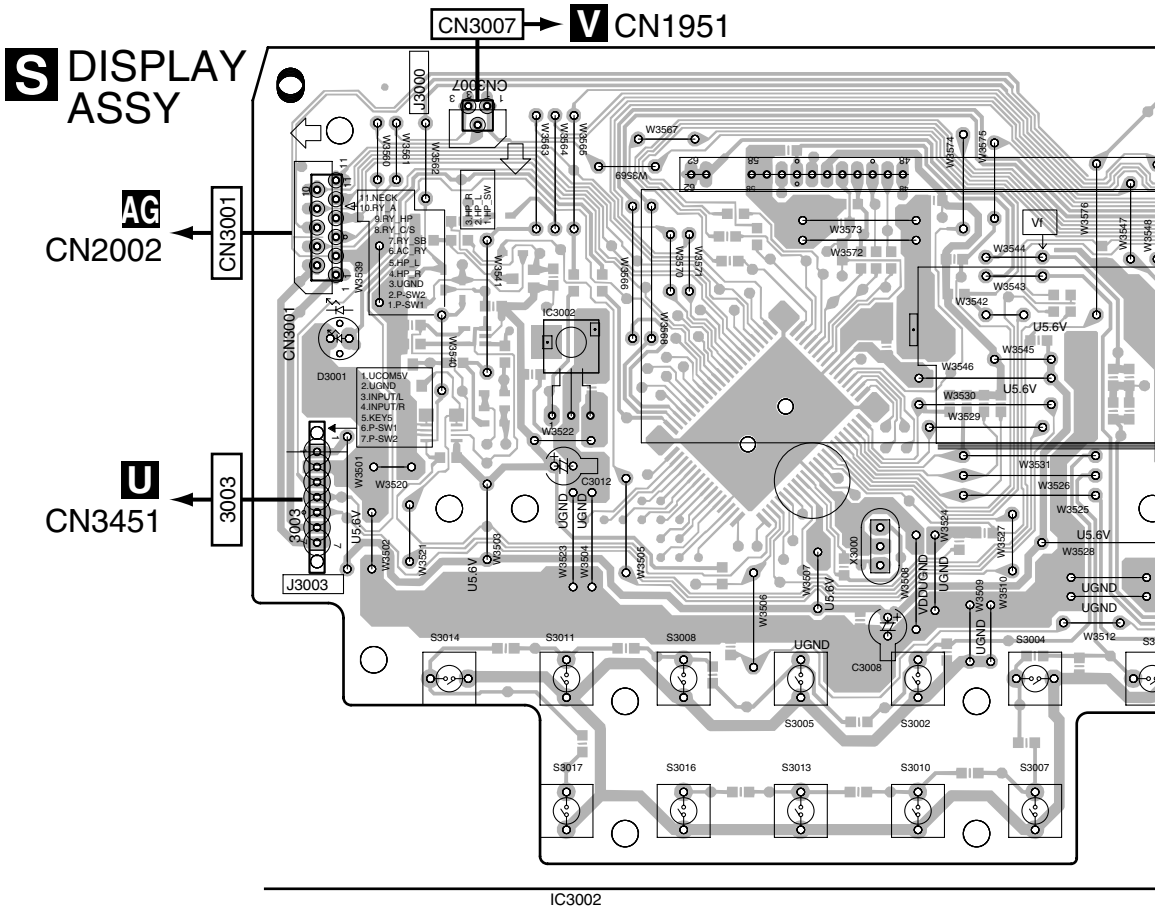
**SIDE B**



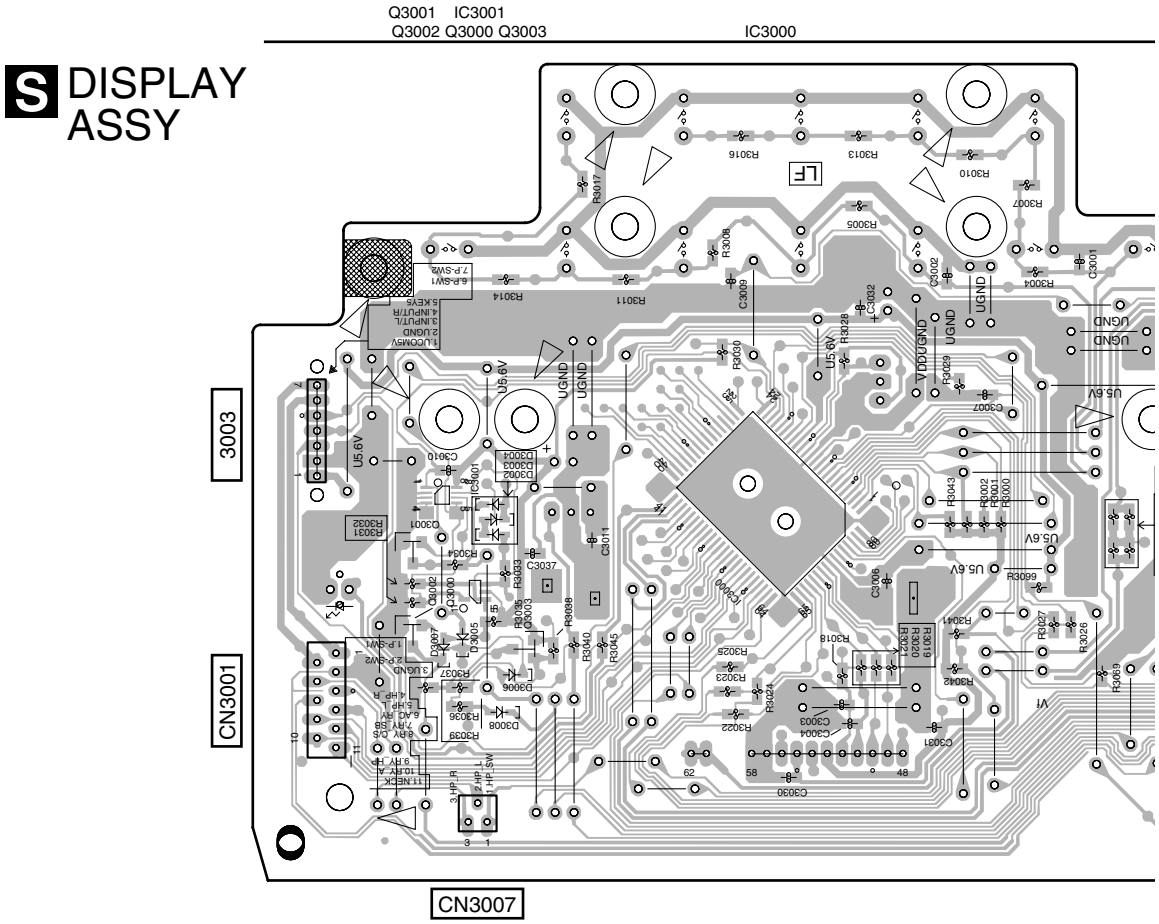

(ANP7489-A)

# 4.15 DISPLAY ASSY

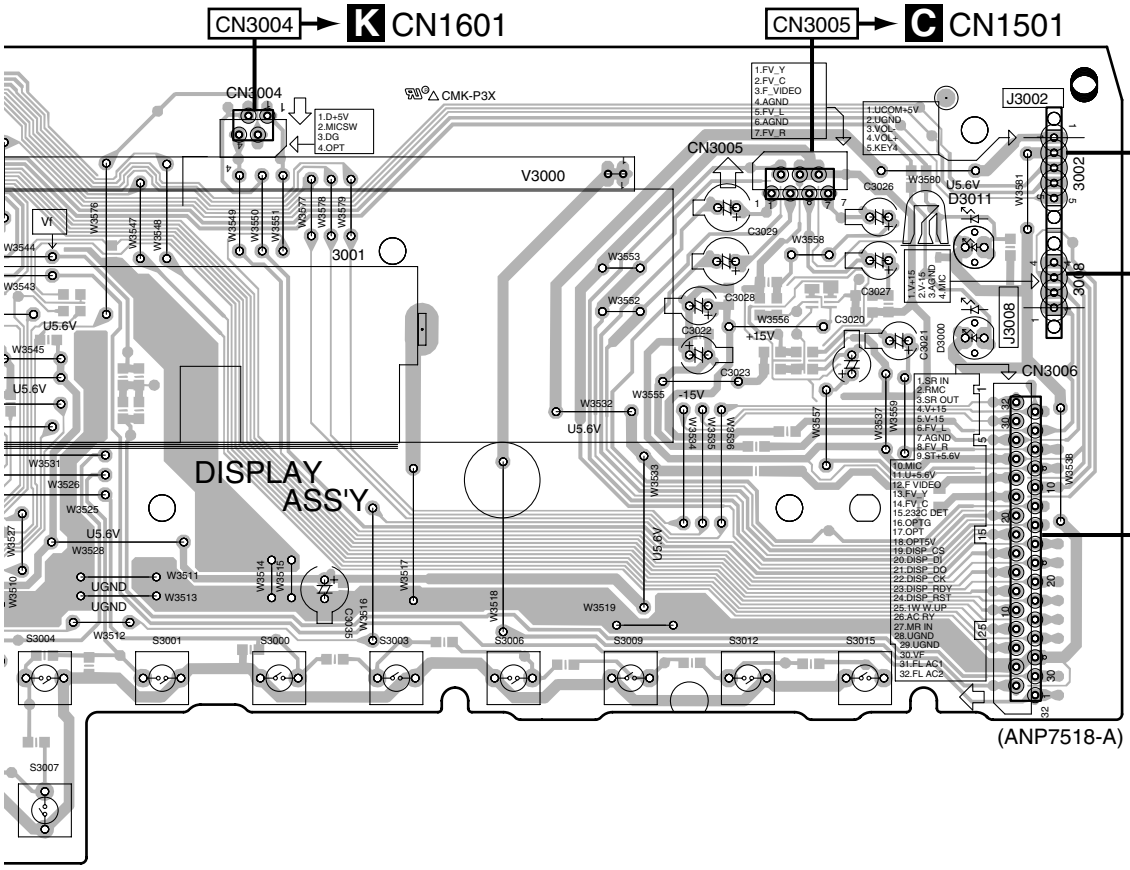
**SIDE A**



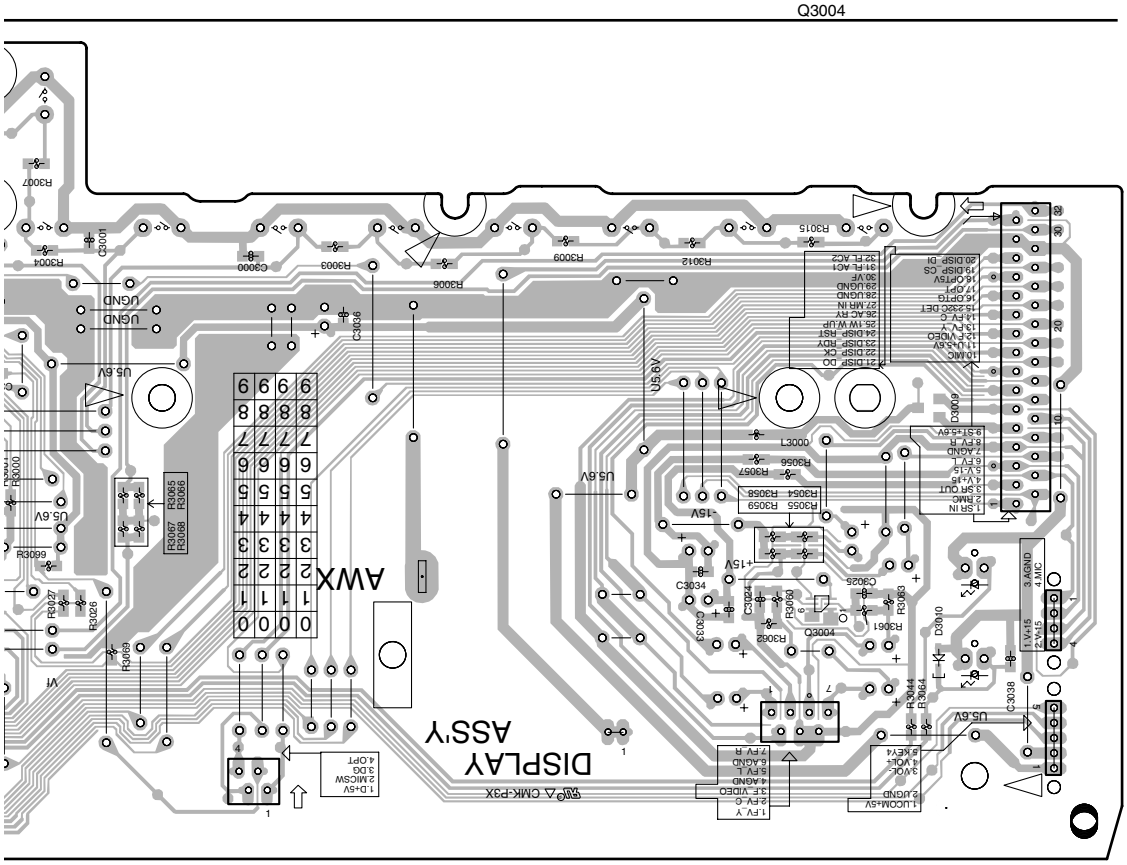

**SIDE B**



SIDE A


CN3004 → K CN1601
CN3005 → C CN1501
CN3004
CMK-P3X
1,D+5V
2,MICSW
3,DG
4,OPT
V3000
3001
CN3005
1,FV_Y
2,FV_C
3,F_VIDEO
4,AGND
5,FV_L
6,AGND
7,FV_R
1:UCOM+5V
2:UGND
3:VOL-
4:VOL+
5:KEY4
J3002
3002
T
CN3401
3008
L
CN4752
J3008
1:MIC
2:V-15
3:AGND
4:+15
CN3006
1,SR IN
2,RMC
3,SR OUT
4,V+15
5,V-15
6,FV_L
7,AGND
8,FV_R
9,ST+5.6V
10,MIC
11,U+5.6V
12,F VIDEO
13,FV_Y
14,FV_C
15,232C DET
16,OPTG
17,OPT
18,OPT5V
19,DISP_CS
20,DISP_DI
21,DISP_DO
22,DISP_CK
23,DISP_RDY
24,DISP_RST
25,1W W.UP
26,AC RY
27,MR IN
28,UGND
29,UGND
30,VF
31,FL AC1
32,FL AC2
CN3006
J
CN501
DISPLAY
ASS'Y
U5.6V
-15V
+15V
UGND
S3004
S3001
S3000
S3003
S3006
S3009
S3012
S3015
S3007
(ANP7518-A)

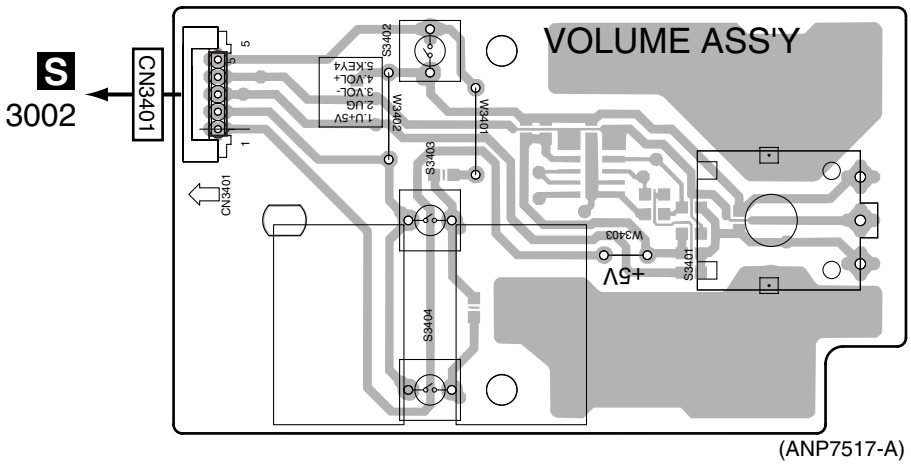
SIDE B


Q3004
CN3006
3008
3002
DISPLAY
ASS'Y
CMK-P3X
1,D+5V
2,MICSW
3,DG
4,OPT
CN3004
CN3005
(ANP7518-A)

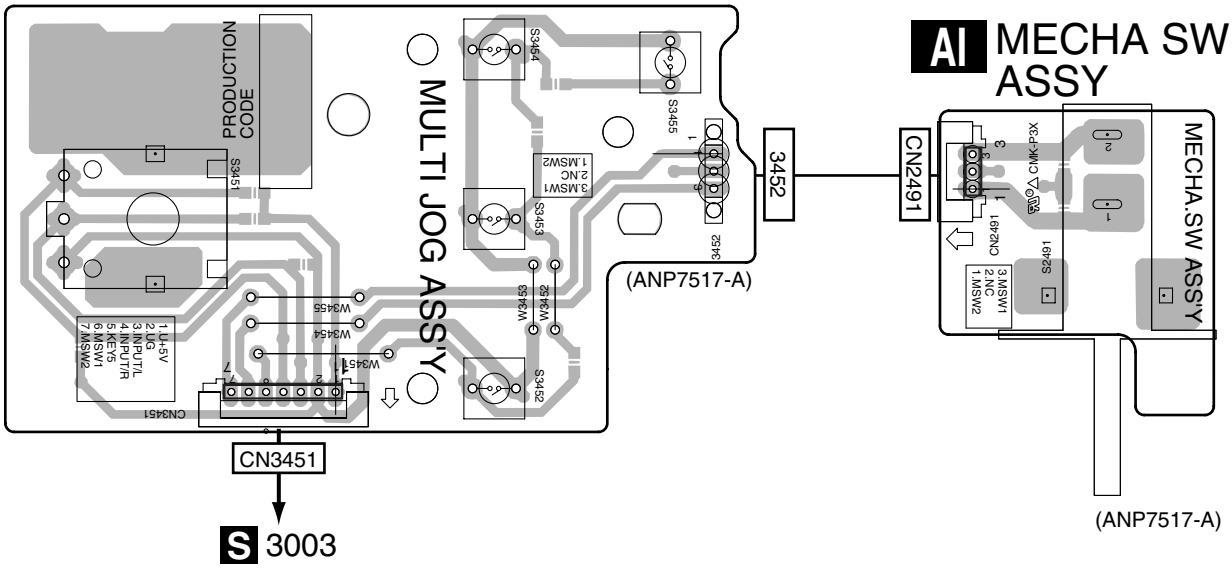
# 4.16 VOLUME, MULTI JOG, HEADPHONE and MECHA SW ASSYS

**SIDE A** **SIDE A**

## T VOLUME ASSY



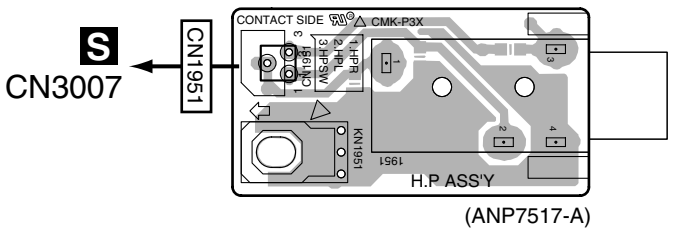

## U MULTI JOG ASSY




## AI MECHA SW ASSY




## V HEADPHONE ASSY

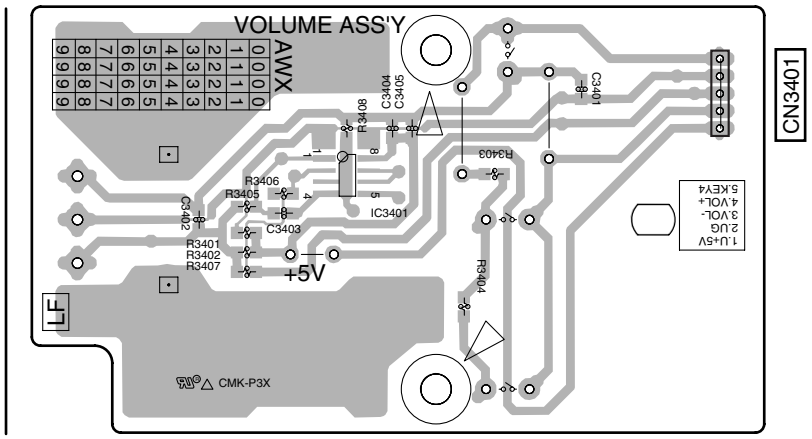



T U V AI T U V AI

SIDE B

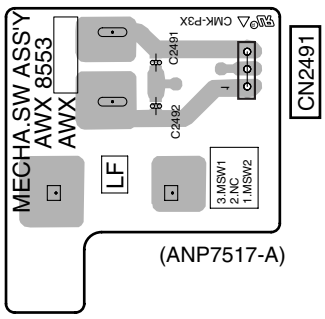
SIDE B

## T VOLUME ASSY



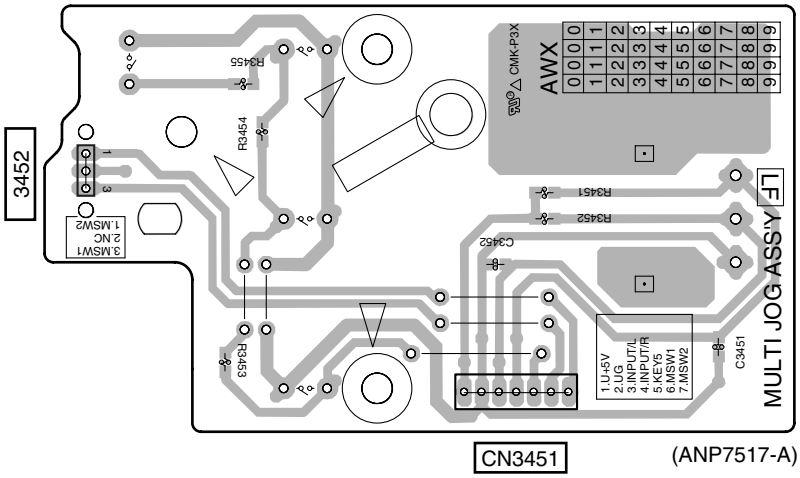

(ANP7517-A)

## AI MECHA SW ASSY




(ANP7517-A)

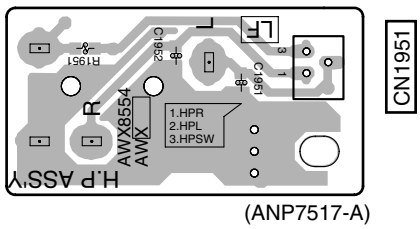
## U MULTI JOG ASSY




CN3451

(ANP7517-A)

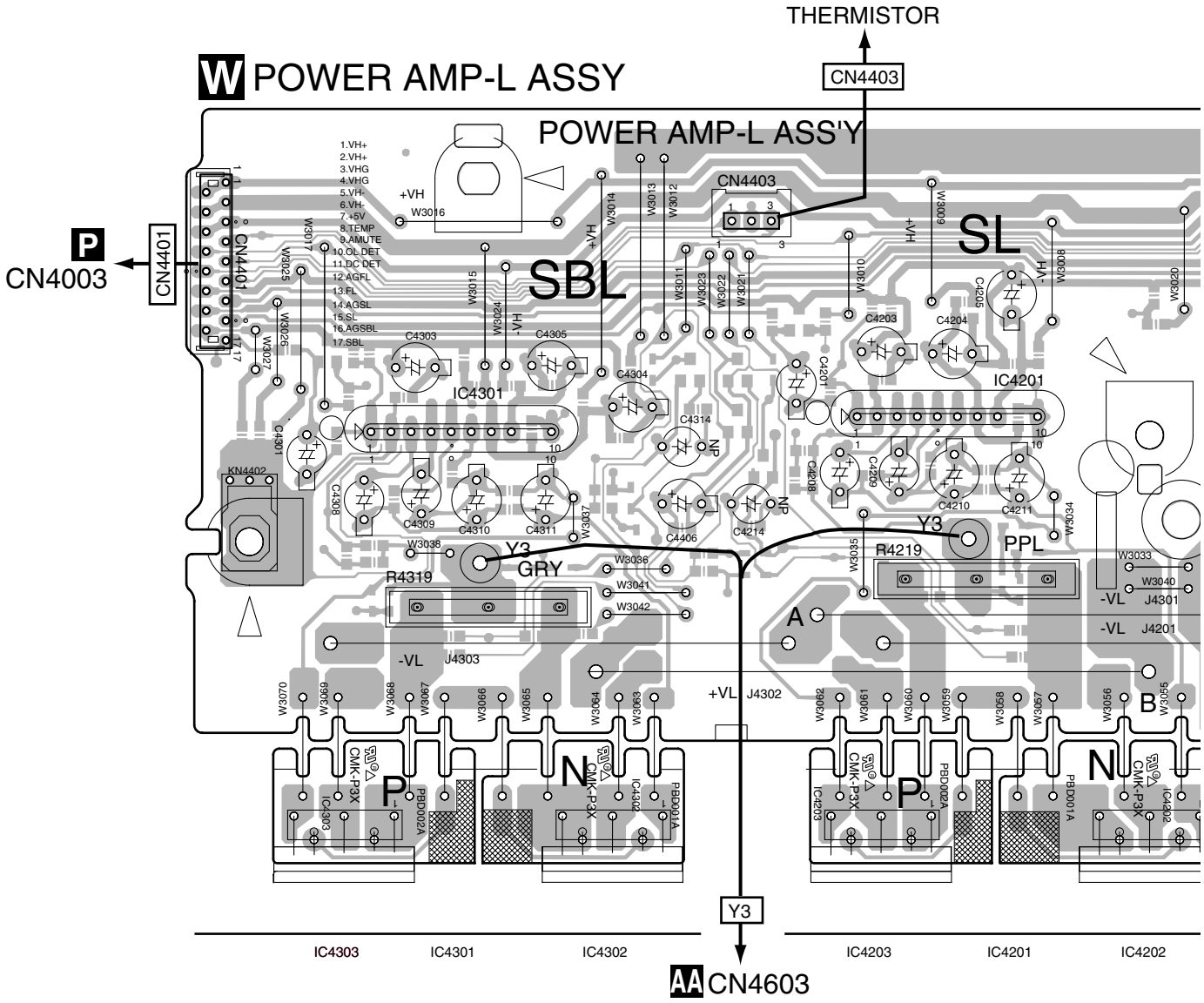
## V HEADPHONE ASSY

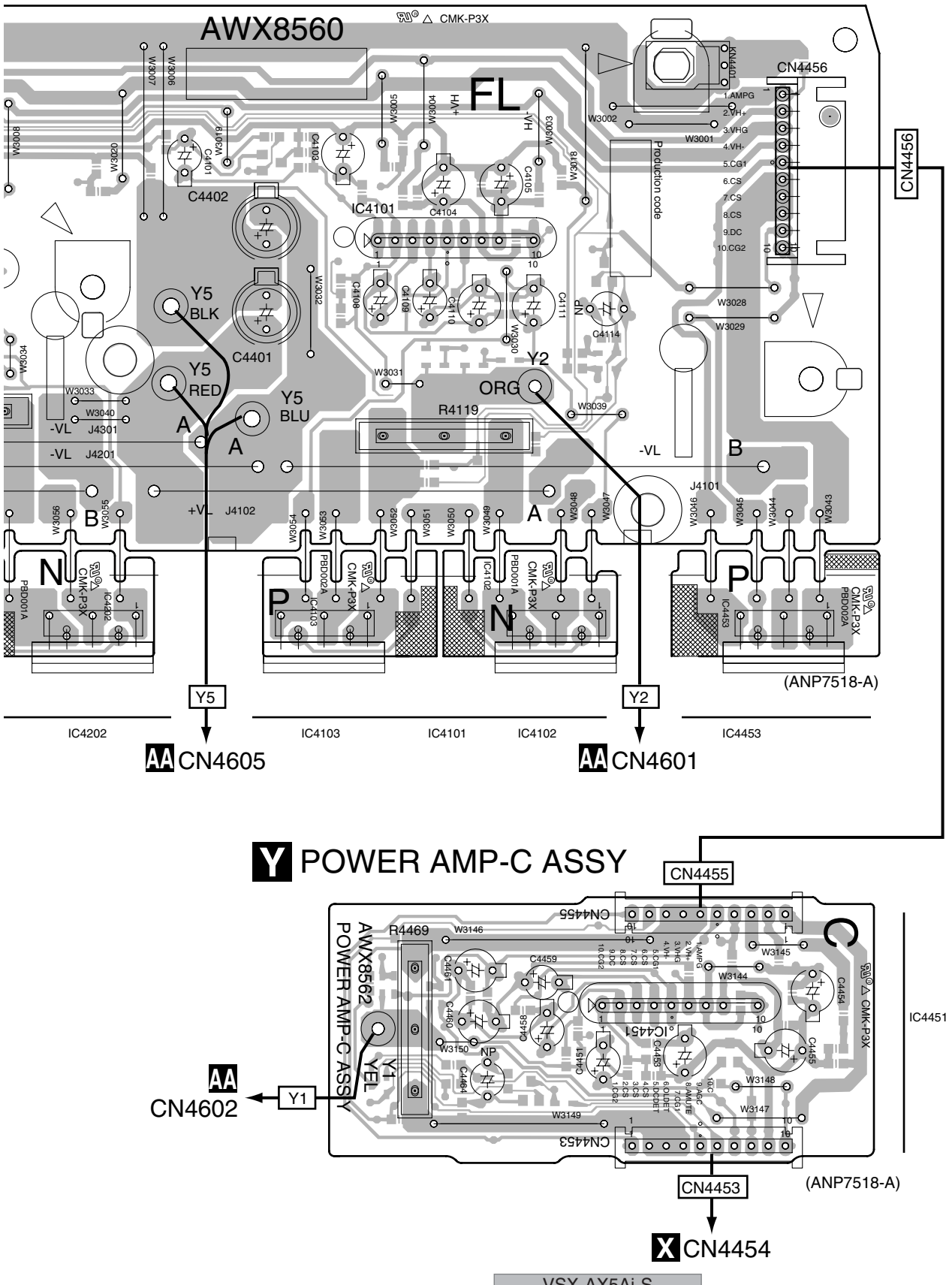



(ANP7517-A)

# 4.17 POWER AMP L and POWER AMP C ASSYS

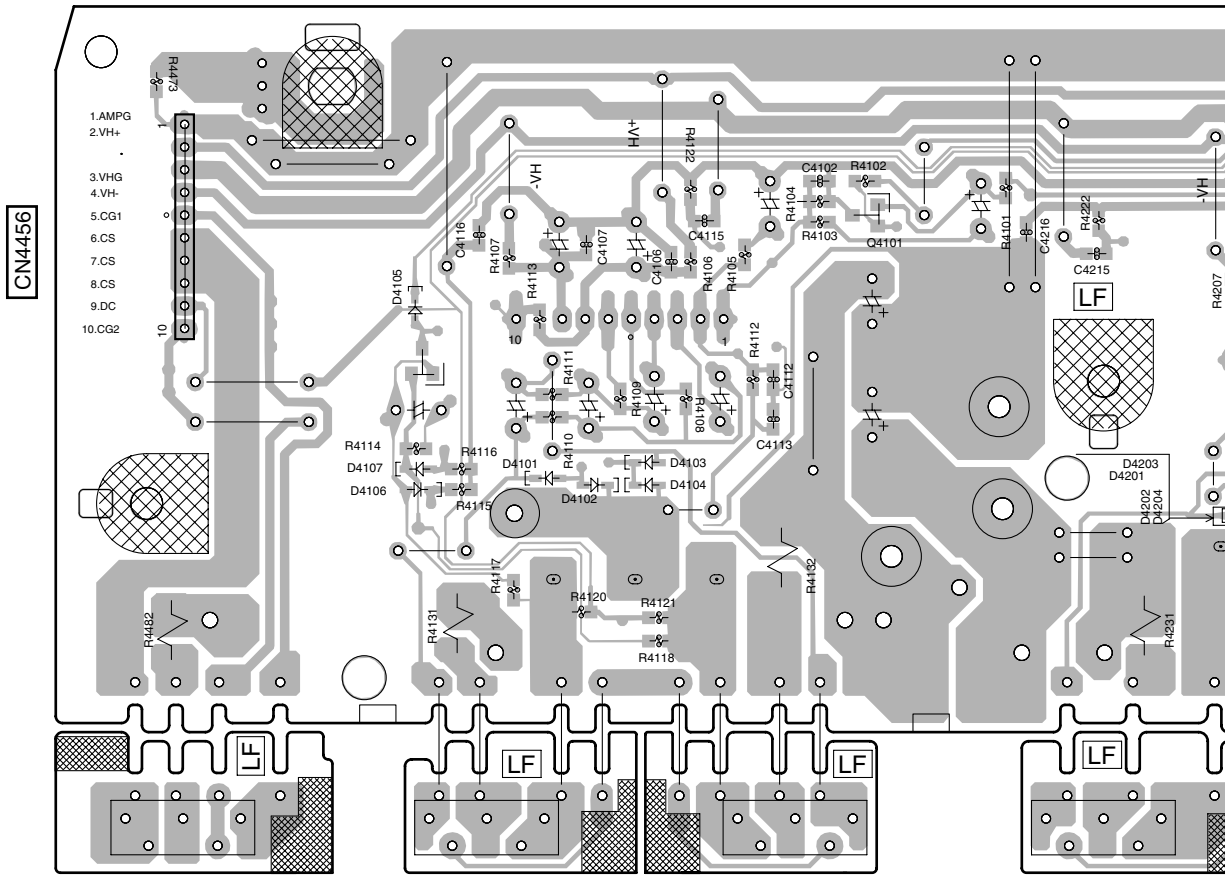
**SIDE A**



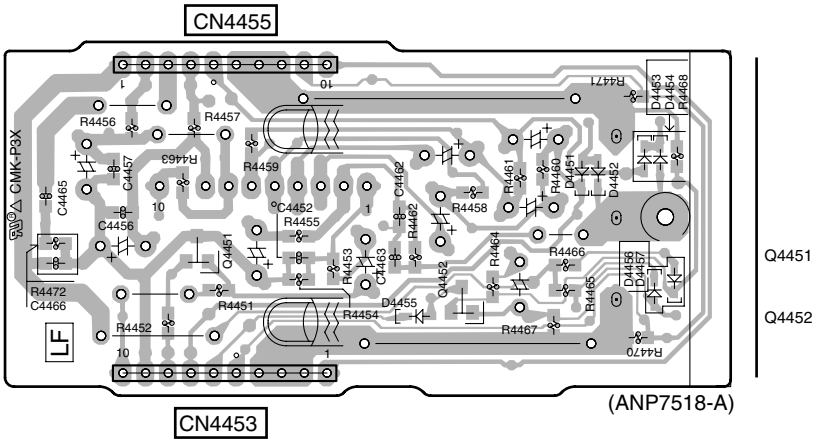

AWX8560
CMK-P3X
FL
CN4456
CN4456
Production code
IC4101
C4402
C4401
Y5 BLK
Y5 RED
Y5 BLU
Y2 ORG
R4119
-VL J4301
-VL J4201
+VL J4102
-VL
J4101
N
P
P
N
(ANP7518-A)
Y5
Y2
IC4202
IC4103
IC4101
IC4102
IC4453
AA CN4605
AA CN4601
Y POWER AMP-C ASSY
CN4455
AWX8562
POWER AMP-C ASSY
R4469
IC4451
AA CN4602
Y1
Y1 YEL
CN4453
(ANP7518-A)
X CN4454

**SIDE B**

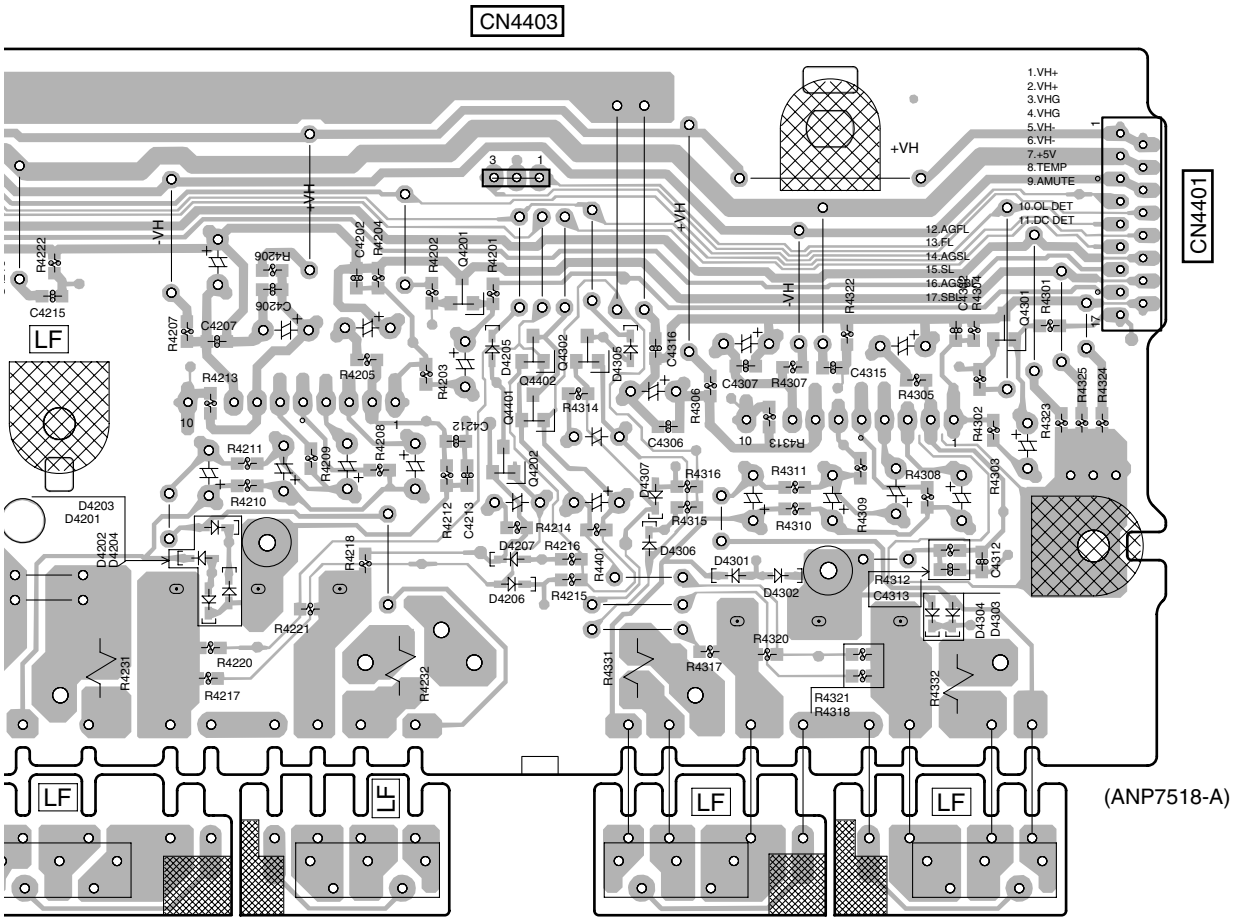
## W POWER AMP-L ASSY




## Y POWER AMP-C ASSY



**SIDE B**

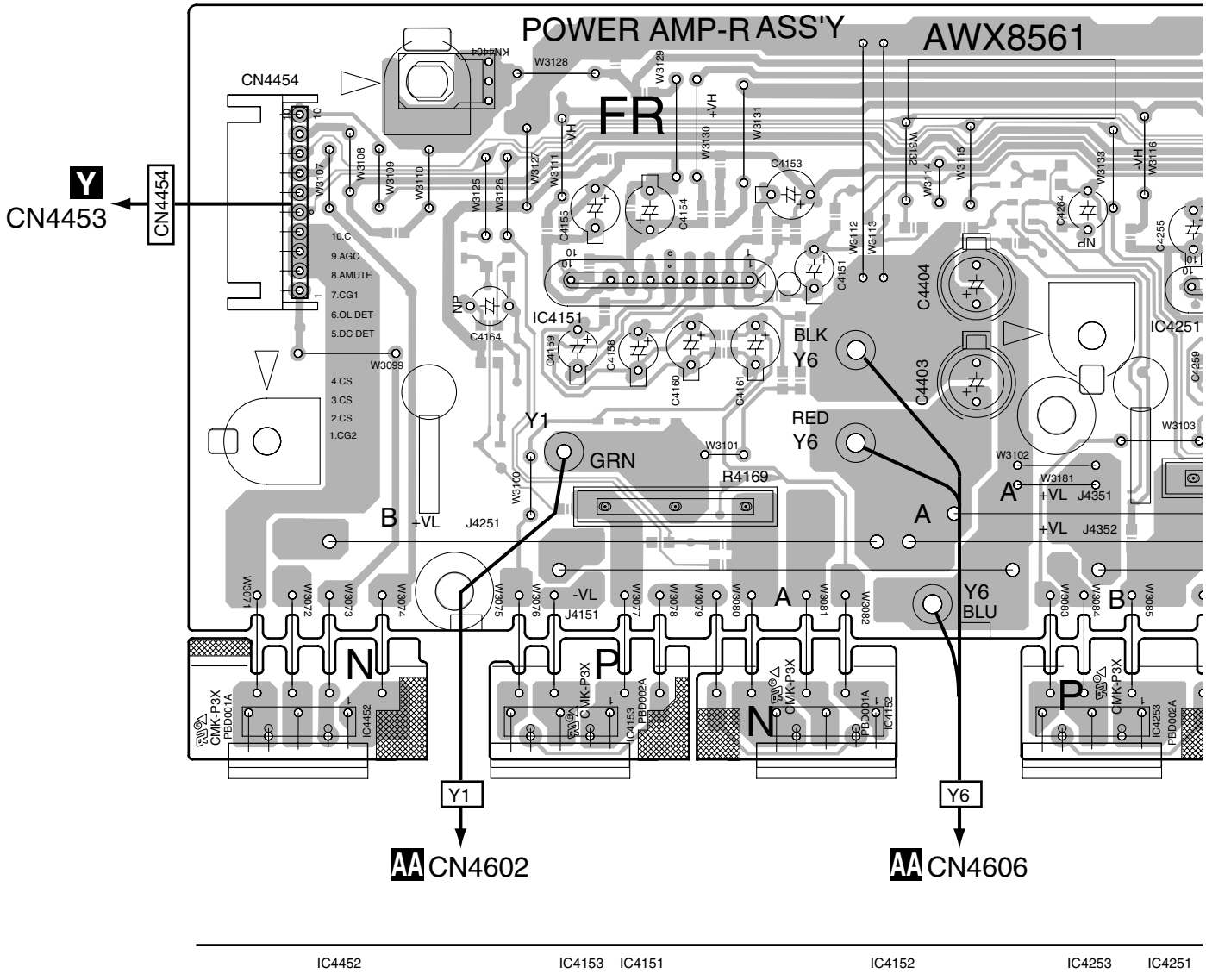



Q4201 Q4402 Q4302 Q4301
Q4401
Q4202

# 4.18 POWER AMP R ASSY

**SIDE A**

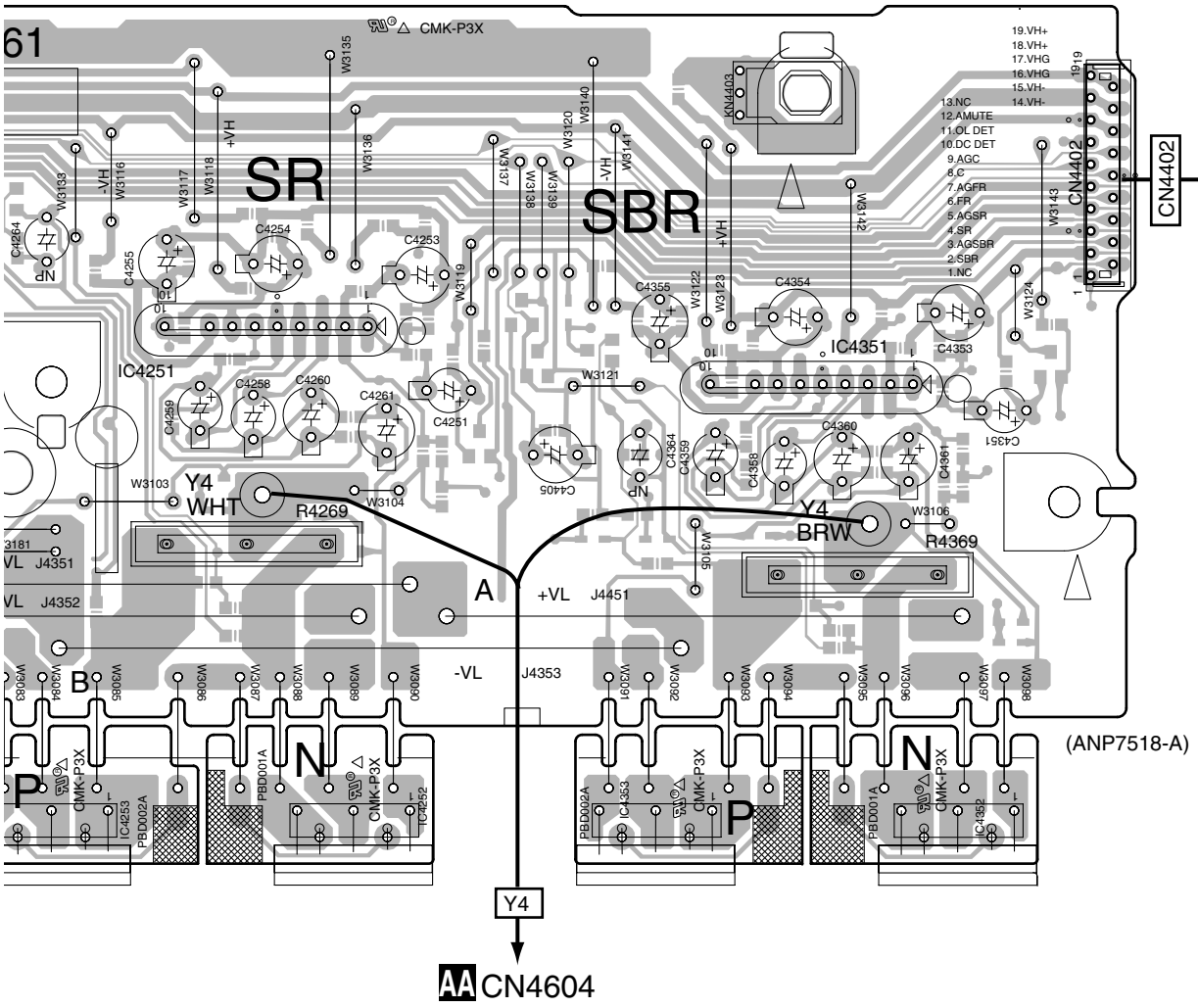
## X POWER AMP-R ASSY




IC4452 IC4153 IC4151 IC4152 IC4253 IC4251

X

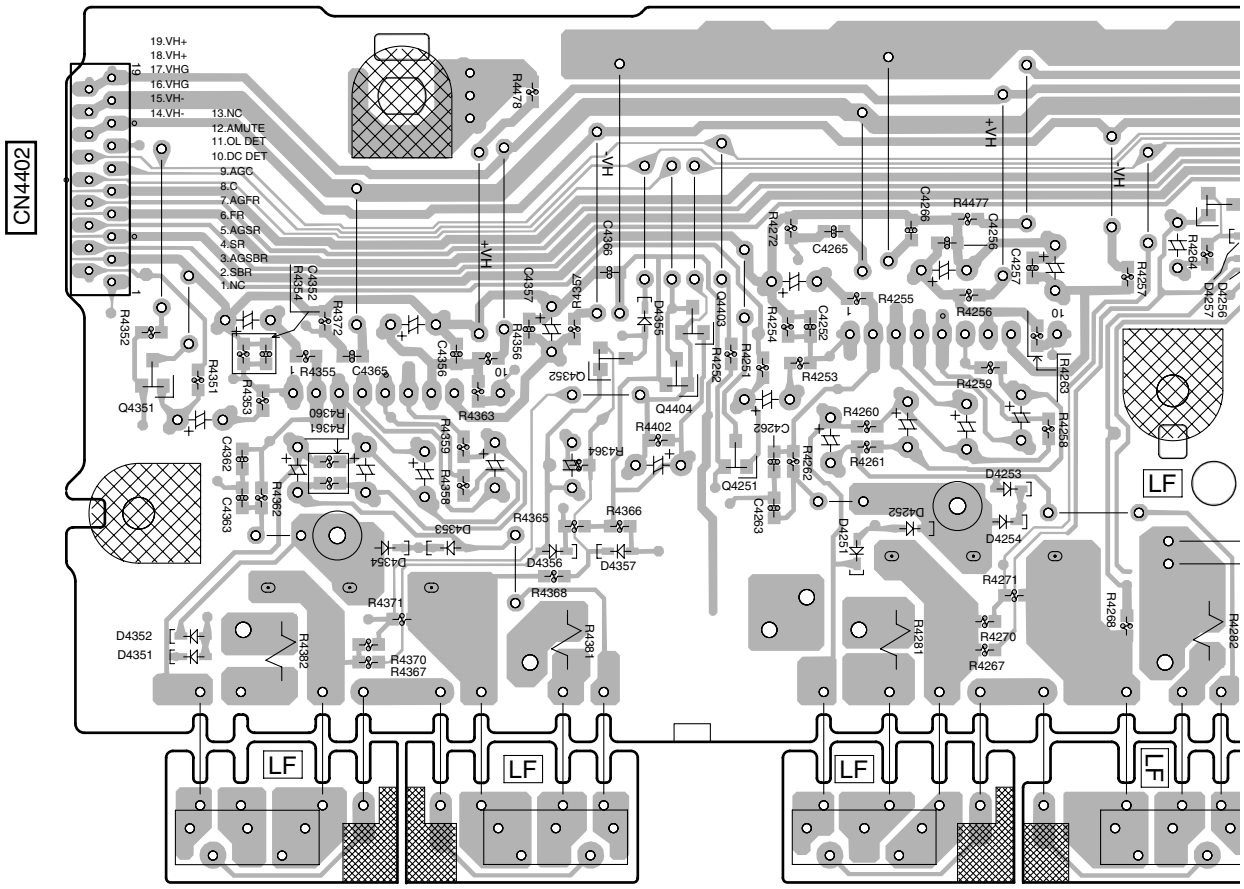
**SIDE A**



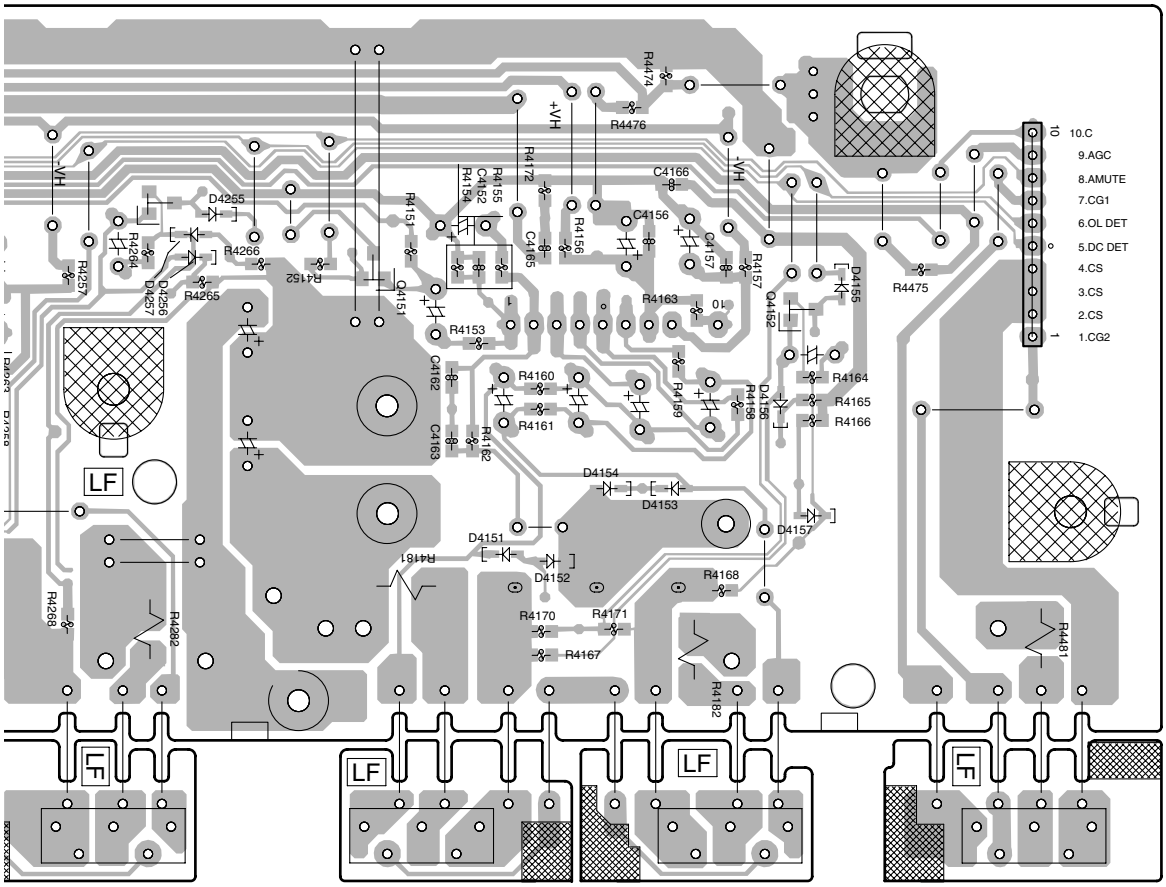

IC4253 IC4251 IC4252 IC4353 IC4351 IC4352

**SIDE B**

# X POWER AMP-R ASSY



**SIDE B**

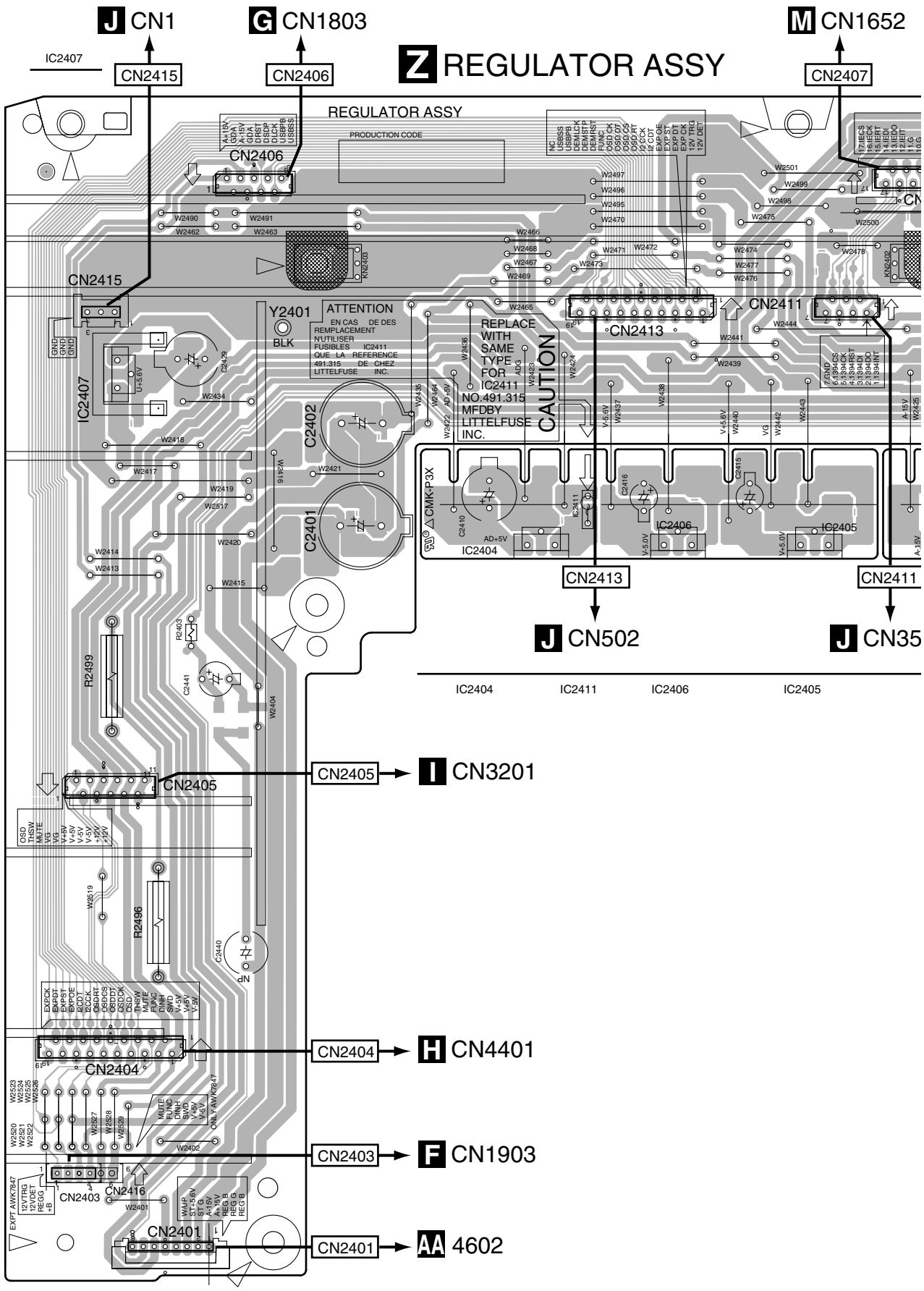



(ANP7518-A)

Q4252 Q4151 Q4152

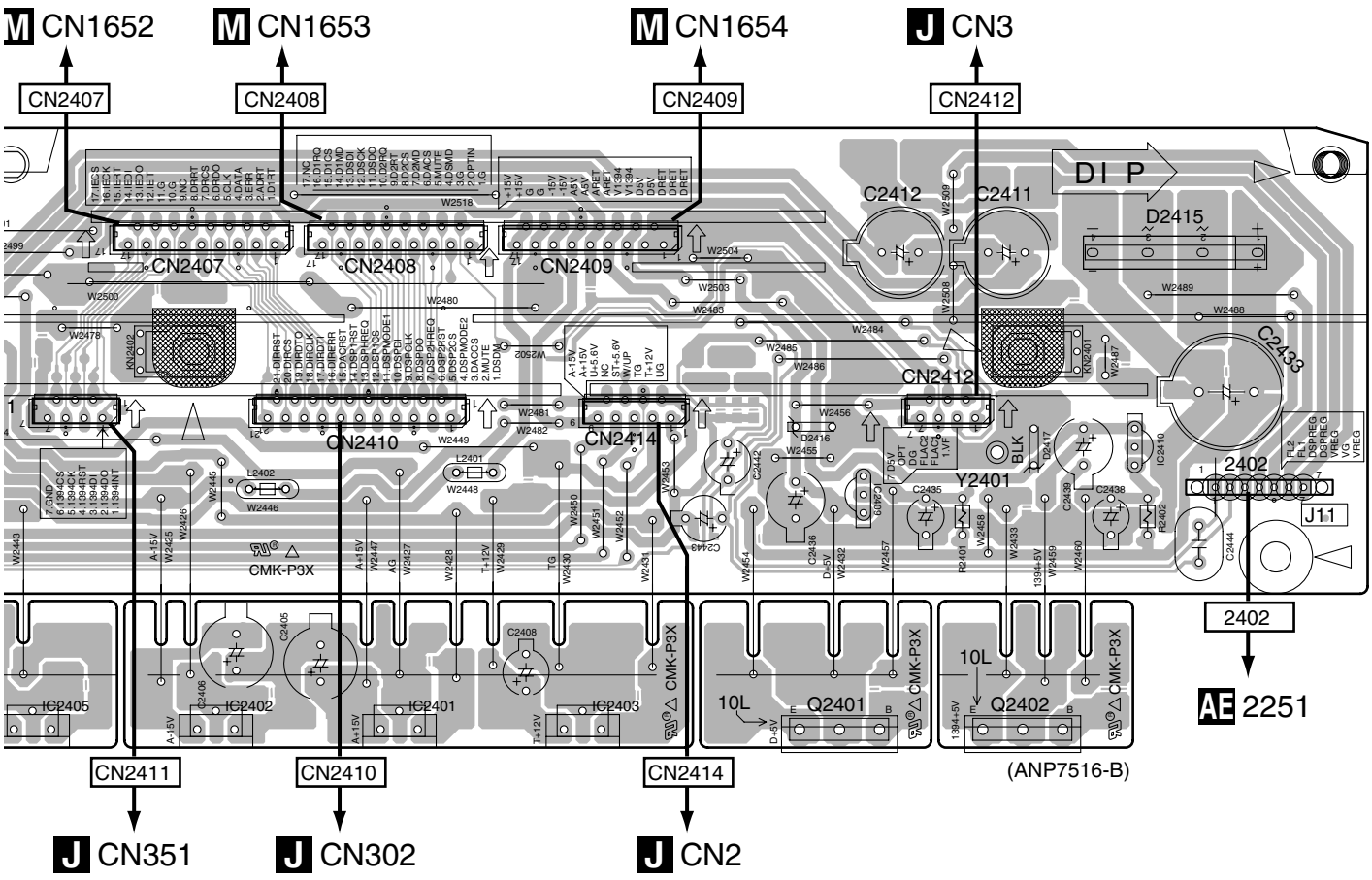
# 4.19 REGULATOR ASSY

**SIDE A**




Z

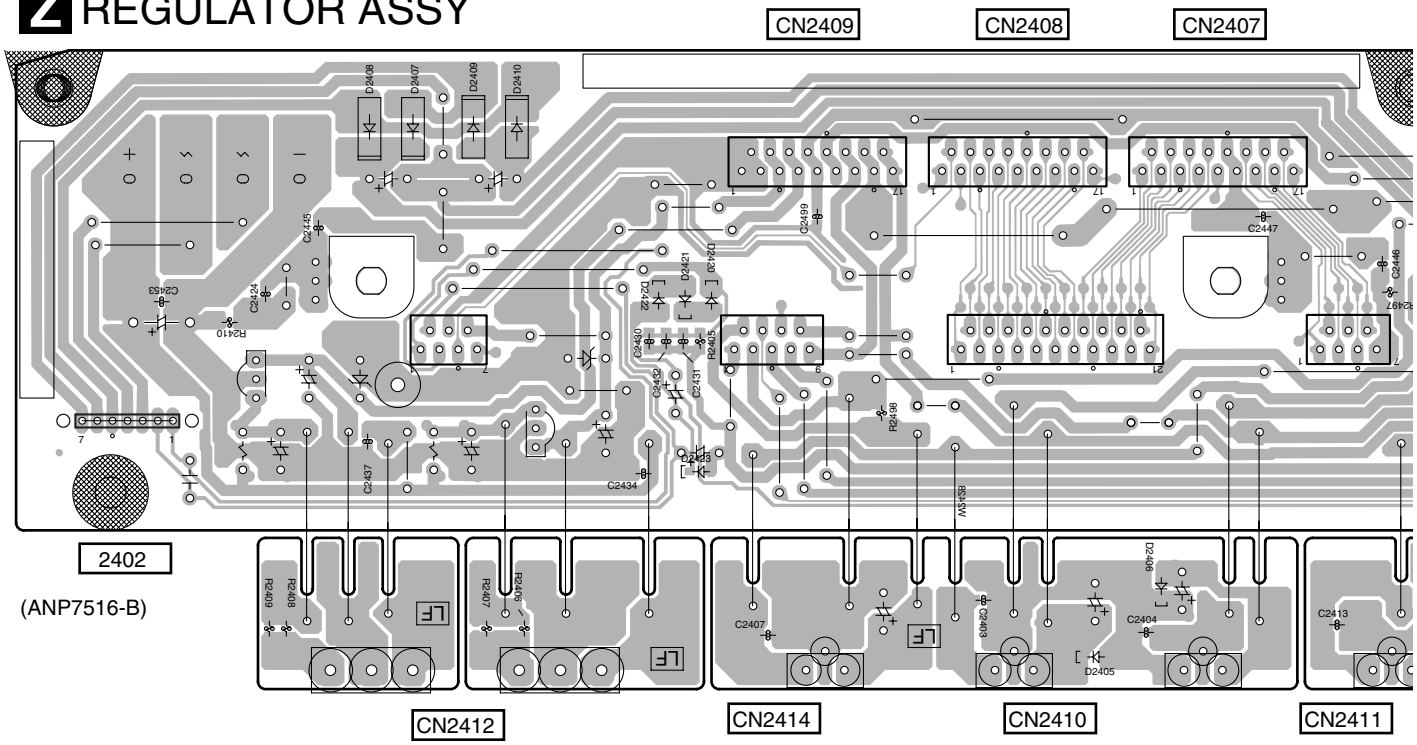
**SIDE A**



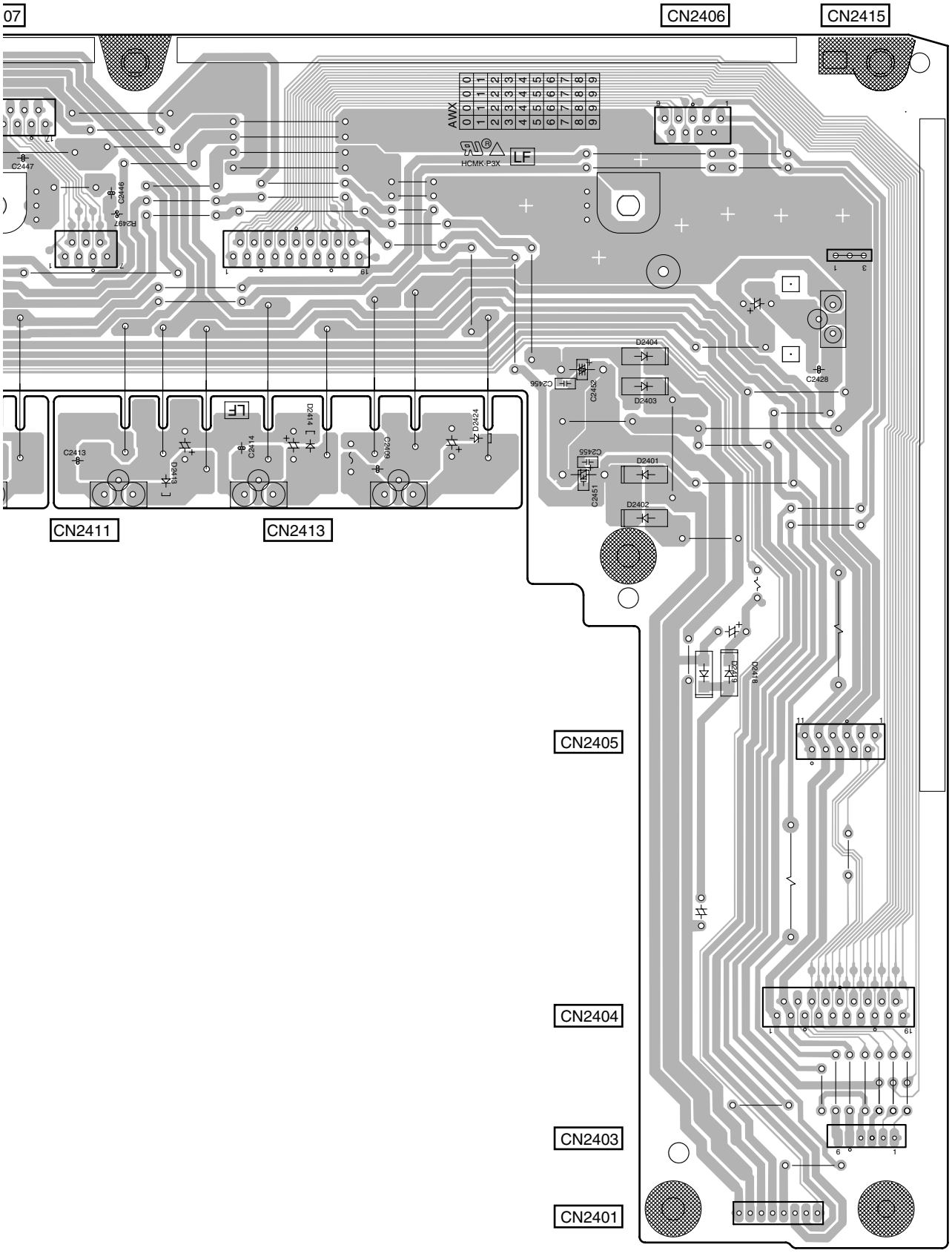

:2405 IC2402 IC2401 IC2403 Q2401 IC2409 Q2402 IC2410

**SIDE B**

# Z REGULATOR ASSY



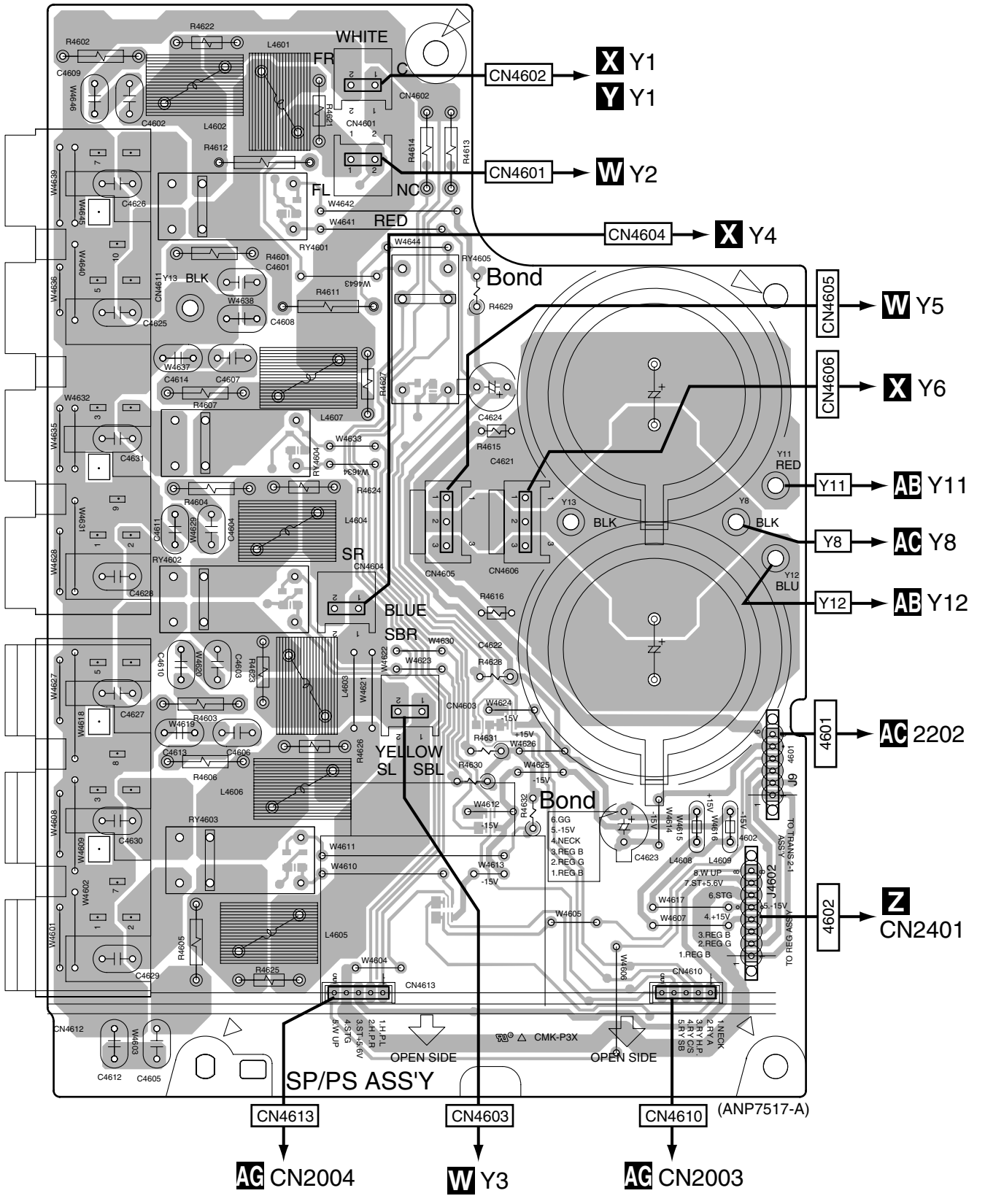
**SIDE B**


07
CN2406
CN2415
CN2411
CN2413
CN2405
CN2404
CN2403
CN2401
AWX
HCMK-P3X
LF
C2447
C2446
R2197
C2413
C2414
C2409
D2414
D2419
D2424
C2456
C2452
C2455
C2451
C2428
D2404
D2403
D2401
D2402
D2418
D2417

## 4.20 SP/PS ASSY

**SIDE A** **SIDE A**

**AA** SP/PS ASSY



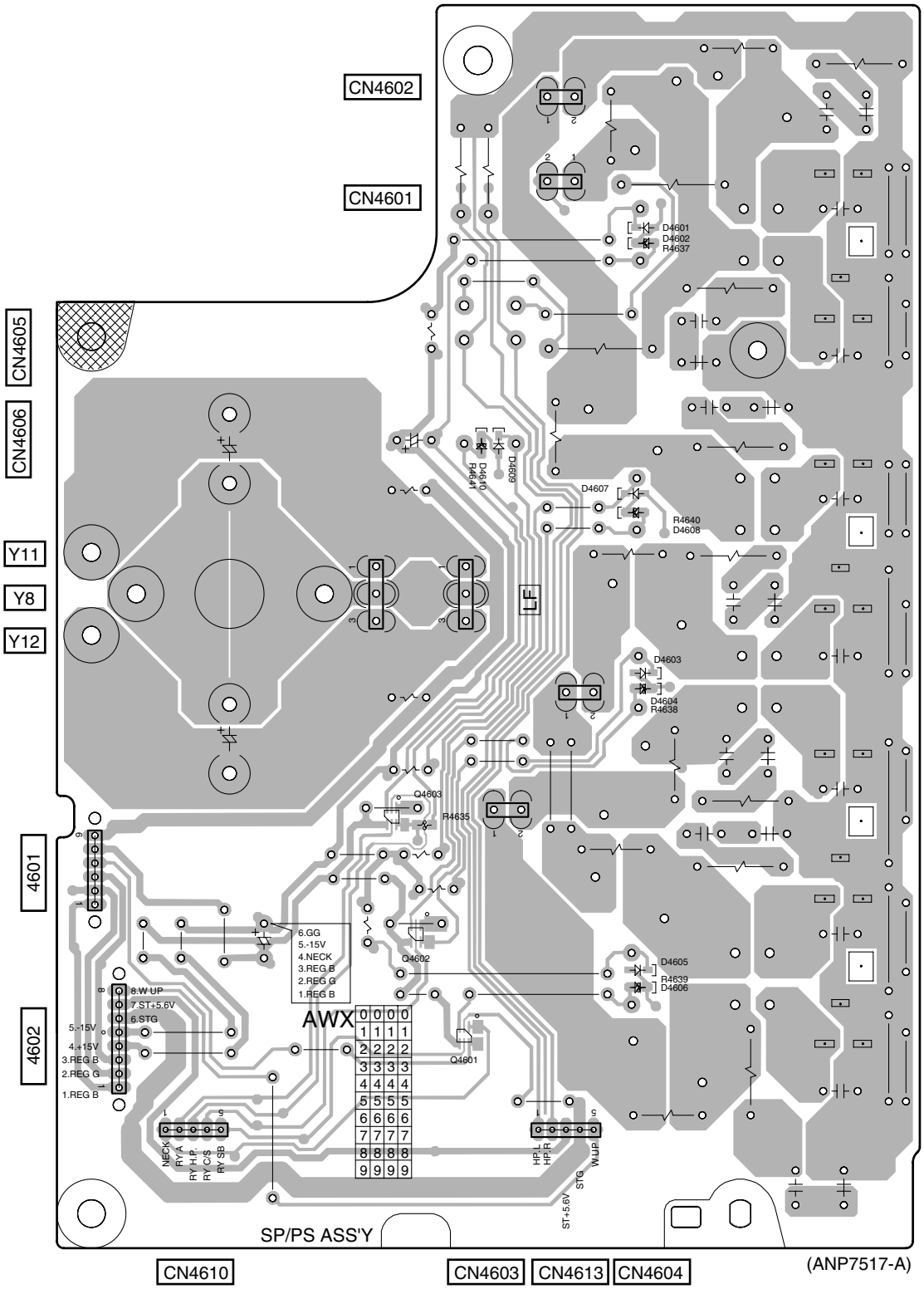

**X** Y1
**Y** Y1
**W** Y2
**X** Y4
**W** Y5
**X** Y6
Y11 **AB** Y11
Y8 **AC** Y8
Y12 **AB** Y12
**AC** 2202
**Z** CN2401
**AG** CN2004
**W** Y3
**AG** CN2003

**AA** **AA**

SIDE B

SIDE B

# AA SP/PS ASSY

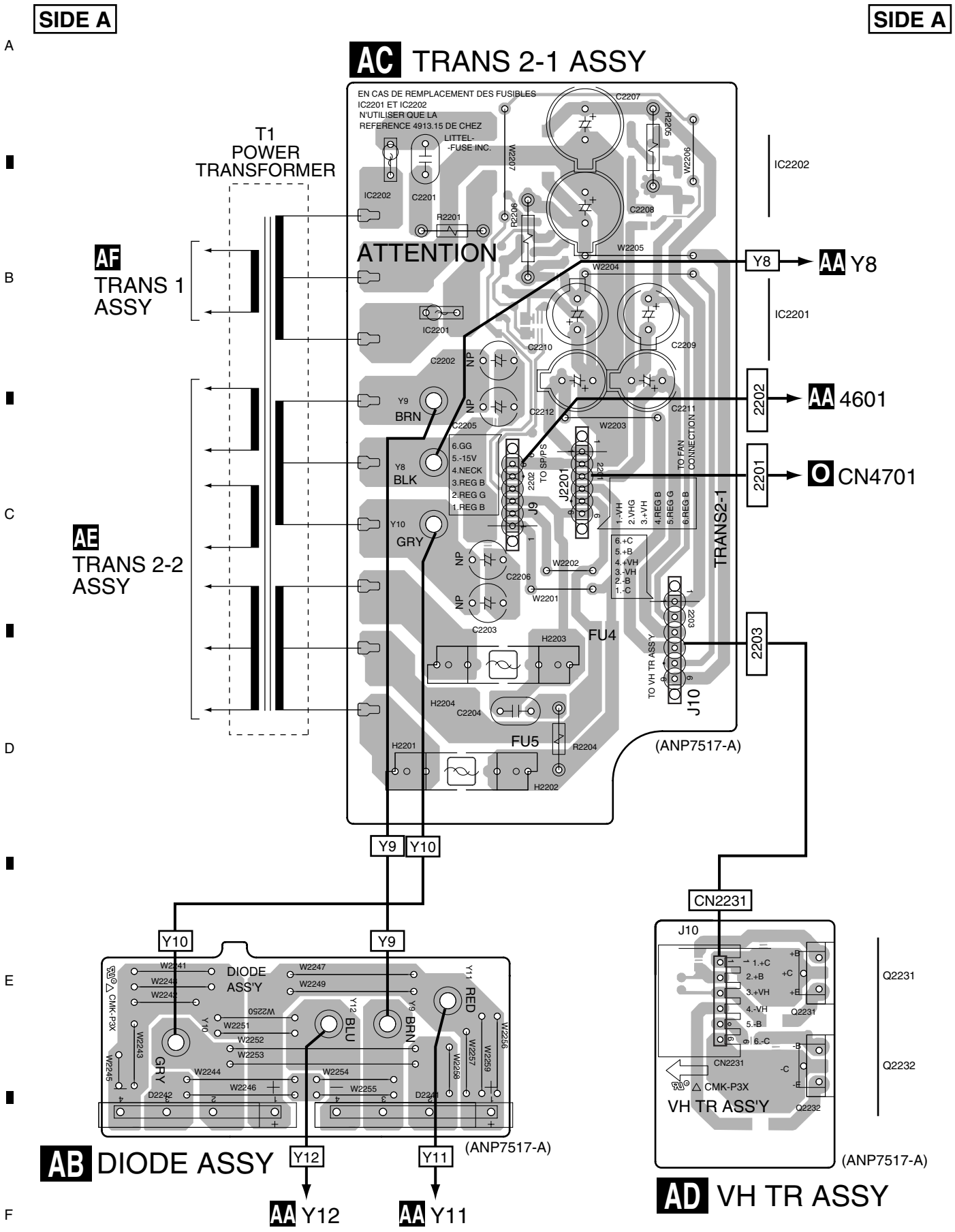



Q4603
Q4602
Q4601

AA

AA

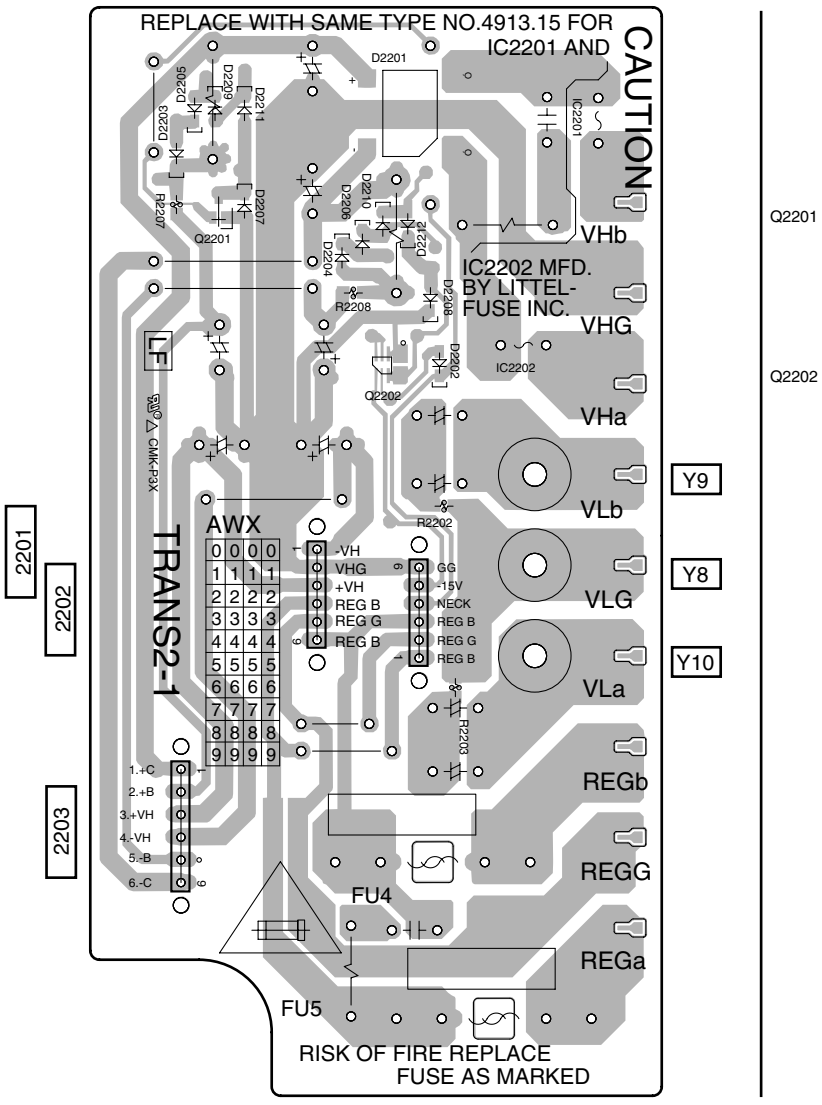
# 4.21 DIODE, TRANS 2-1 and VH TR ASSYS



SIDE B

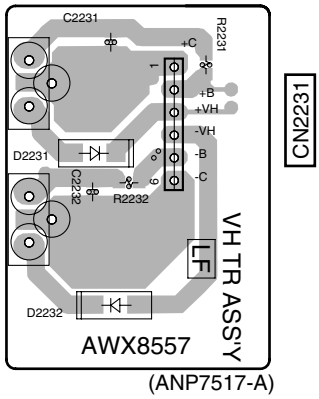
SIDE B

## AC TRANS 2-1 ASSY

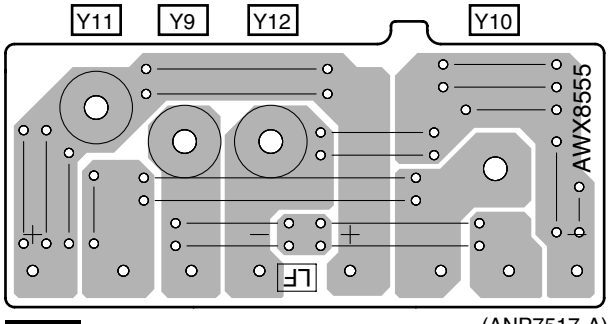



(ANP7517-A)

## AD VH TR ASSY




(ANP7517-A)



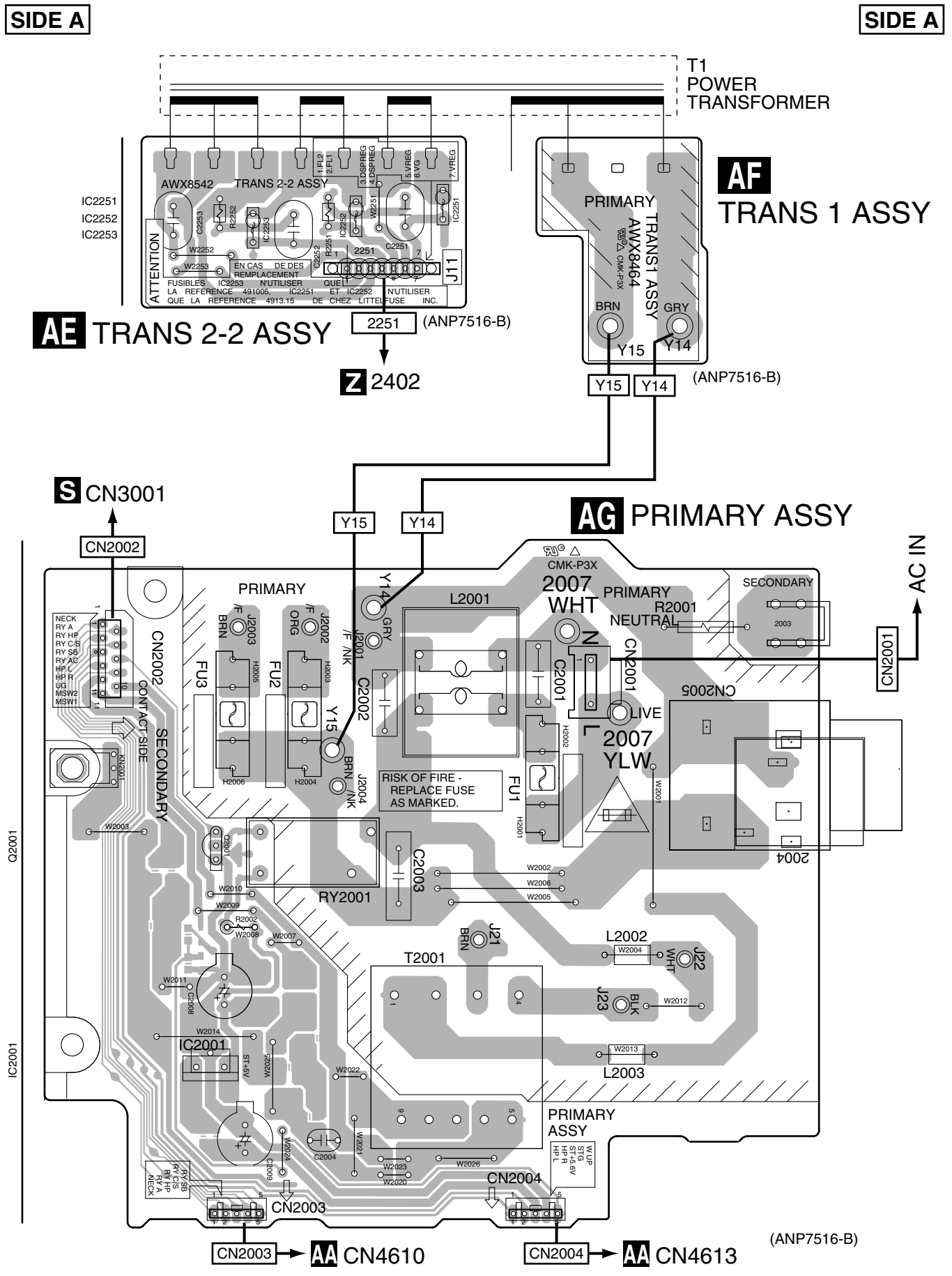

(ANP7517-A)

## AB DIODE ASSY

AB AC AD

AB AC AD

# 4.22 TRANS 2-2, TRANS 1 and PRIMARY ASSYS



SIDE B

SIDE B

## ● Line Voltage Selection

**Line Voltage can be changed by the following modification:**

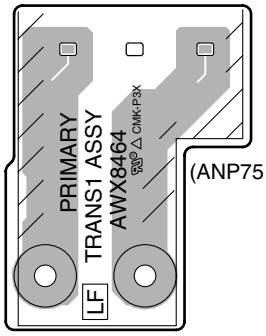
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection wire from TRANS 1 ASSY to PRIMARY ASSY (Terminal No. Y15) as follows.

| Voltage | Terminal No. |
|---|---|
| 220-230V | Y15 of TRANS 1 ASSY |
| 240V | 240V terminal of power transformer |

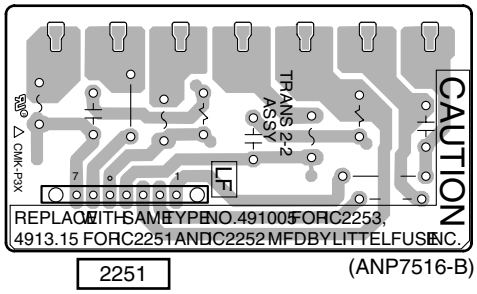
4. Stick a line voltage label on the rear panel.

| Description | Part No. |
|---|---|
| 220V label | AAX-193 |
| 240V label | AAX-192 |

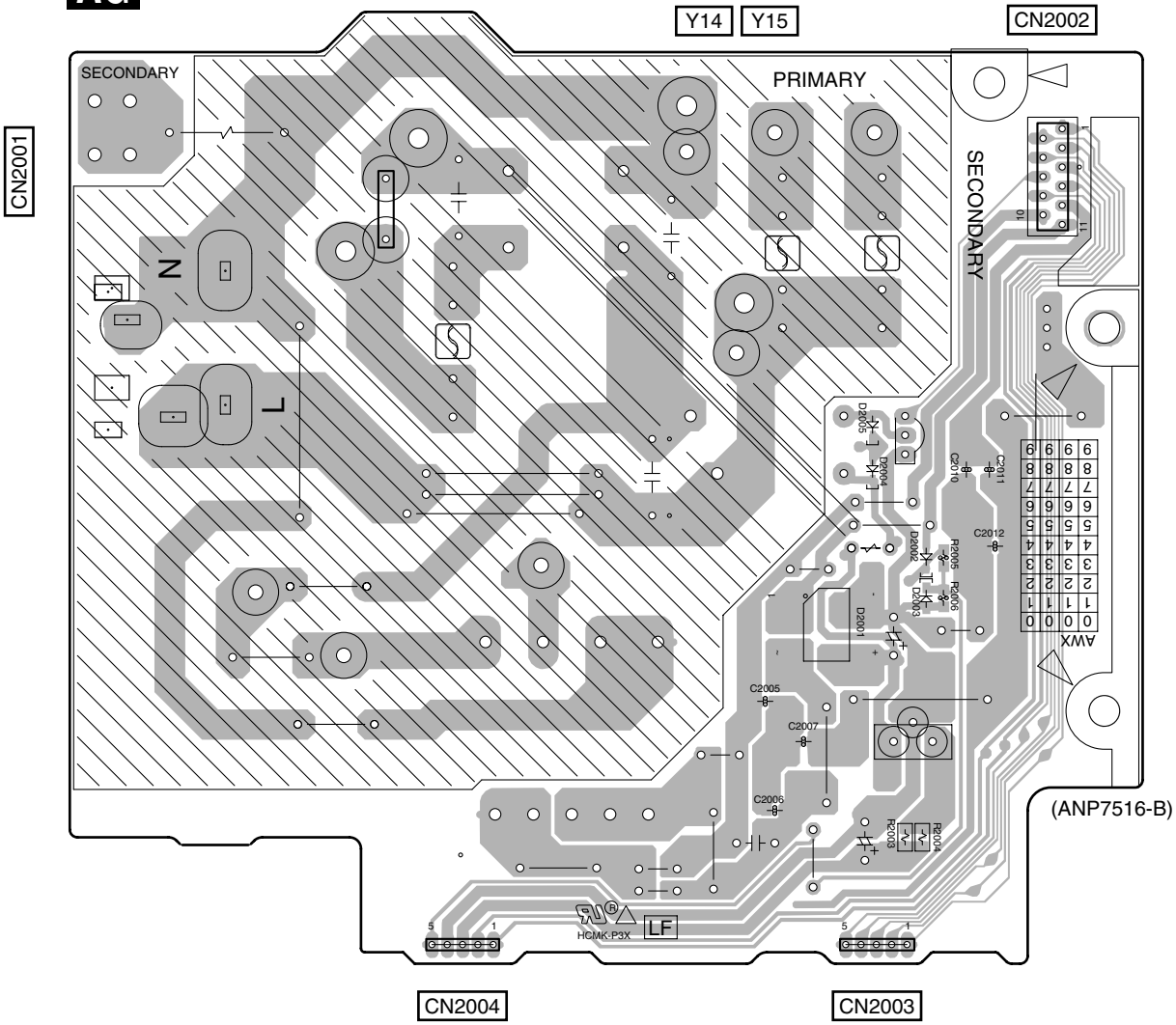
## AF TRANS 1 ASSY




## AE TRANS 2-2 ASSY




## AG PRIMARY ASSY

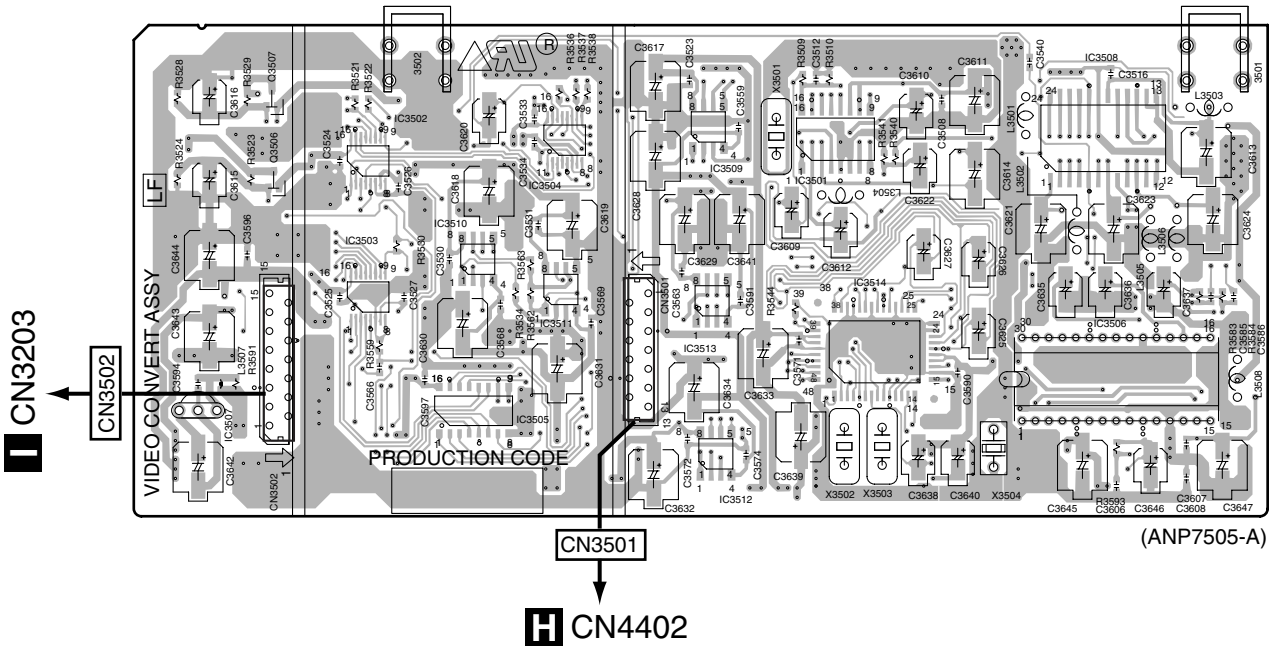


# 4.23 VIDEO CONVERT ASSY

**SIDE A**

**SIDE A**

## AH VIDEO CONVERT ASSY



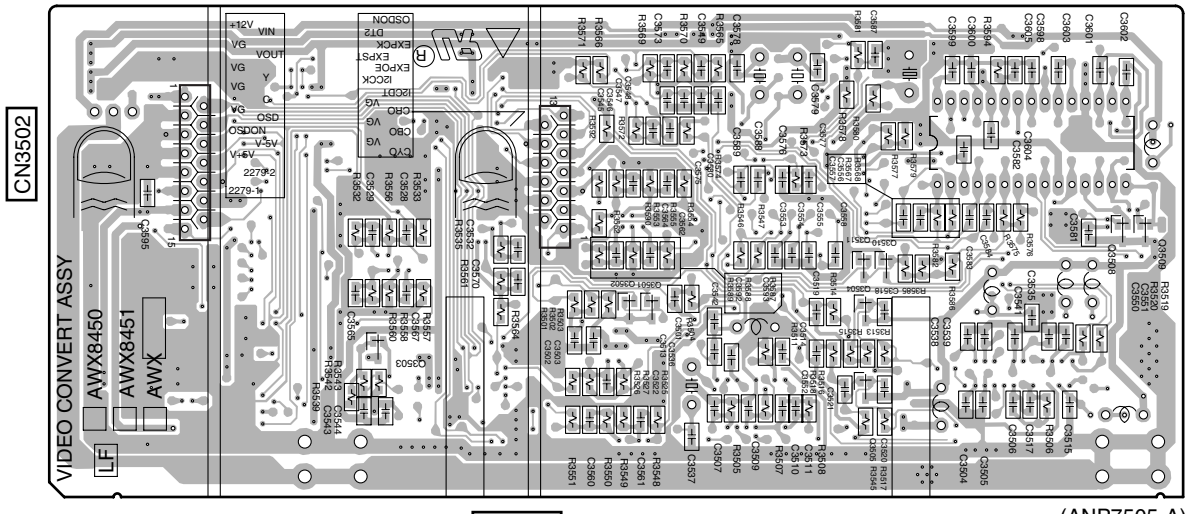

(ANP7505-A)

| | | | | | | |
|---|---|---|---|---|---|---|
| Q3507<br>Q3506 | IC3503<br>IC3502 | IC3510 | IC3504<br>IC3505<br>IC3511 | IC3513<br>IC3512 | IC3514 | IC3508 |

**SIDE B**

**SIDE B**

## AH VIDEO CONVERT ASSY




(ANP7505-A)

| | | | | | | |
|---|---|---|---|---|---|---|
| IC933 | | Q3502 | Q3501 | Q3504<br>Q3505 | Q3510<br>Q3511 | Q3508<br>Q3509 |

**AH** **AH**

# 5. PCB PARTS LIST

*NOTES:*
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).*

*560 Ω → 56 x $10^1$ → 561 ..... RD1/4PU 5 6 1 J*
*47k Ω → 47 x $10^3$ → 473 ..... RD1/4PU 4 7 3 J*
*0.5 Ω → R50 ..... RN2H R 5 0 K*
*1 Ω → 1R0 ..... RS1P 1 R 0 K*

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62k Ω → 562 x $10^1$ → 5621 ..... RN1/4PC 5 6 2 1 F*

## • LIST OF WHOLE PCB ASSEMBLIES

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | ..FM/AM TUNER MODULE | AXX7170 |
| NSP | 1 | ..REGULATOR ASSY | AWK7846 |
| | 2 | ..MIC & F.OPT IN ASSY | AWX8545 |
| | 2 | ..REGULATOR ASSY | AWX8541 |
| | 2 | ..PRIMARY ASSY | AWX8461 |
| | 2 | ..TRANS2-2 ASSY | AWX8542 |
| | 2 | ..7.1CH I/O ASSY | AWX8543 |
| NSP | 2 | ..POWER AMP IN ASSY | AWX8544 |
| | 2 | ..FAN DRIVE ASSY | AWX8488 |
| NSP | 1 | ..COMPLEX ASSY | AWK7851 |
| NSP | 2 | ..VOLUME ASSY | AWX8550 |
| NSP | 2 | ..MULTI JOG ASSY | AWX8552 |
| | 2 | ..INPUT CONNECT ASSY | AWX8546 |
| NSP | 2 | ..FRONT IN ASSY | AWX8549 |
| | 2 | ..OPTICAL IN ASSY | AWX8556 |
| NSP | 2 | ..HEADPHONE ASSY | AWX8554 |
| | 2 | ..DIODE ASSY | AWX8555 |
| | 2 | ..VH TR ASSY | AWX8557 |
| | 2 | ..V-AUDIO IN ASSY | AWX8558 |
| | 2 | ..SP/PS ASSY | AWX8470 |
| | 2 | ..12V TRIGGER ASSY | AWX8548 |
| | 2 | ..TRANS 2-1 ASSY | AWX8551 |
| | 2 | ..MECHA SW ASSY | AWX8553 |
| NSP | 1 | ..MAIN ASSY | AWK7836 |
| | 2 | ..MAIN CONTROLASSY | AWX8435 |
| | 2 | ..DSP CONNECTION ASSY | AWX8441 |
| | 2 | ..COAXIAL IN ASSY | AWX8443 |
| | 2 | ..MIC AMP ASSY | AWX8447 |
| | 2 | ..FAN CONNECTION ASSY | AWX8448 |
| NSP | 1 | ..VIDEO CONVERT ASSY | AWK7842 |
| | 2 | ..VIDEO CONVERT ASSY | AWX8451 |
| | 2 | ..VIDEO ASSY | AWX8452 |
| | 2 | ..COMPONENT ASSY | AWX8454 |
| NSP | 1 | ..POWER AMP ASSY | AWK7863 |
| | 2 | ..POWER AMP-L ASSY | AWX8560 |
| | 2 | ..POWER AMP-R ASSY | AWX8561 |
| | 2 | ..POWER AMP-C ASSY | AWX8562 |
| | 2 | ..DISPLAY ASSY | AWX8559 |
| | 1 | ..DSP ASSY | AWX8489 |
| | 1 | ..1394 ASSY | AWK7834 |

| Mark | No. | Description | Part No. |
|---|---|---|---|

### REGULATOR ASSY

**OTHERS**

| | | |
|---|---|---|
| | Y15 | ADX7465 |
| | Y14 | ADX7466 |
| | J11 | D20PYY0745E |

### COMPLEX ASSY

**OTHERS**

| | | |
|---|---|---|
| | Y8 BOARD IN JUMPER | ADX7284 |
| | Y9 BOARD IN JUMPER | ADX7285 |
| | Y10 BOARD IN JUMPER | ADX7286 |
| | Y11 BOARD IN JUMPER | ADX7287 |
| | Y12 BOARD IN JUMPER | ADX7288 |
| | J9 JUMPER WIRE 6P | D20PYY0615E |

### A 7.1CH I/O ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| | IC1301-IC1304 | UPC4570G2-A |
| | Q1351, Q1352, Q1361, Q1362 | HN1C03F |
| | Q1371, Q1372, Q1381, Q1382 | HN1C03F |

**CAPACITORS**

| | | |
|---|---|---|
| | C1301-C1304, C1307, C1308 | CCSRCH101J50 |
| | C1311-C1314, C1317, C1318 | CCSRCH101J50 |
| | C1321-C1324, C1327, C1328 | CCSRCH101J50 |
| | C1331-C1334, C1337, C1338 | CCSRCH101J50 |
| | C1351, C1352, C1361, C1362 | CCSRCH331J50 |
| | C1371, C1372, C1381, C1382 | CCSRCH331J50 |
| | C1309, C1310, C1319, C1320 | CEAT100M50 |
| | C1329, C1330, C1339, C1340 | CEAT100M50 |
| | C1305, C1306, C1315, C1316 | CEAT4R7M50 |
| | C1325, C1326, C1335, C1336 | CEAT4R7M50 |
| | C1341-C1348, C1391-C1394 | CKSRYB103K50 |

**RESISTORS**

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

**OTHERS**

| | | |
|---|---|---|
| | 1301-1304 4P PIN JACK | AKB7075 |
| | CN1306 5P SOCKET | XKP3073 |
| | CN1307, CN1308 9P SOCKET | XKP3075 |

| Mark No. | Description | Part No. |
|---|---|---|

## B V-AUDIO IN ASSY

### SEMICONDUCTORS

| | | |
|---|---|---|
| | Q1201, Q1202 | 2SC2878 |

### CAPACITORS

| | | |
|---|---|---|
| | C1201-C1212 | CCSRCH221J50 |
| | C1213-C1215 | CKSRYB103K50 |

### RESISTORS

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

### OTHERS

| | | |
|---|---|---|
| | 1201, 1203 4P PIN JACK | AKB7075 |
| | CN1205 6P PIN JACK | AKB7162 |
| | CN1204 17P SOCKET | XKP3079 |

## C FRONT IN ASSY

### CAPACITORS

| | | |
|---|---|---|
| | C1501, C1502 | CCSRCH221J50 |
| | C1505 | CKSRYB102K50 |
| | C1504, C1506 | CKSRYB103K50 |
| | C1503 | CKSRYB472K50 |
| | C1510 | CKSRYB473K50 |

### RESISTORS

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

### OTHERS

| | | |
|---|---|---|
| | CN1501 7P FFC CONNECTOR | 52044-0745 |
| | JA1501 FRONT INPUT | AKX7016 |
| | KN1501 EARTH METAL FITTING | VNF1084 |

## D OPTICAL IN ASSY

### COILS AND FILTERS

| | | |
|---|---|---|
| | F1701 | DTF1064 |

### CAPACITORS

| | | |
|---|---|---|
| | C1706 | CEAT470M16 |
| | C1701-C1705 | CKSRYF104Z16 |

### RESISTORS

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

### OTHERS

| | | |
|---|---|---|
| | CN1701 9P FFC CONNECTOR | 52045-0945 |
| | JA1701, JA1702 OPTICAL LINK IN | GP1FA502RZ |
| | JA1703, JA1704 OPTICAL LINK OUT | GP1FA502TZ |

## E INPUT CONNECT ASSY

### SEMICONDUCTORS

| | | |
|---|---|---|
| | IC1401 | M62429FP |
| | IC1451 | UPC4570G2-A |
| | D1401 | UDZS5R1(B) |

### CAPACITORS

| | | |
|---|---|---|
| | C1406, C1407 | CCSQCH101J50 |
| | C1401-C1405, C1451, C1452 | CEAT100M50 |
| | C1454, C1455 | CKSRYB103K50 |
| | C1453 | CKSRYB472K50 |

| Mark No. | Description | Part No. |
|---|---|---|

### RESISTORS

| | | |
|---|---|---|
| | R1405 | RS3LMF391J |
| | Other Resistors | RS1/16S###J |

### OTHERS

| | | |
|---|---|---|
| | CN1407 5P PLUG | XKP3062 |
| | CN1406, CN1408 9P PLUG | XKP3064 |
| | CN1405 17P PLUG | XKP3068 |
| | CN1402 9P PLUG | XKP3074 |
| | CN1404 9P SOCKET | XKP3075 |
| | CN1403 13P SOCKET | XKP3077 |
| | CN1401 15P SOCKET | XKP3078 |

## F 12V TRIGGER ASSY

### SEMICONDUCTORS

| | | |
|---|---|---|
| ⚠ | IC1931 | BA12T |
| | IC1901 | SP232AEN |
| | Q1933 | 2SA1037K |
| | Q1931 | 2SB1237X |
| | Q1901 | 2SC1740S |
| | Q1932 | DTC124EK |
| | D1901, D1902 | 1SS355 |
| | D1931 | UDZS5R1(B) |

### COILS AND FILTERS

| | | |
|---|---|---|
| | L1901 | LAU1R0J |

### CAPACITORS

| | | |
|---|---|---|
| | C1901 | CEAT101M16 |
| | C1903-C1906 | CEAT1R0M50 |
| | C1938 | CEATR10M50 |
| | C1932, C1933 | CEHAT100M50 |
| | C1902, C1907, C1911, C1921, C1931 | CKSRYB103K50 |
| | C1934-C1936 | CKSRYB103K50 |
| | C1909 | CKSRYB331K50 |

### RESISTORS

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

### OTHERS

| | | |
|---|---|---|
| | CN1901 D-SUB SOCKET | AKP1213 |
| | CN1902 KR CONNECTOR | B8B-PH-K |
| | CN1903 4P SOCKET | KP200TA4L |
| | JA1922 REMOTE CONTROL JACK | RKN1004 |
| | 1901 SCREW TERMAINL | VNE1948 |

## G COAXIAL IN ASSY

### SEMICONDUCTORS

| | | |
|---|---|---|
| | IC1681 | PCM2902EG |
| | IC1881 | TC74HCU04AF |
| | IC1682 | TC7SET08F |

### COILS AND FILTERS

| | | |
|---|---|---|
| | F1881 | DTF1064 |

### CAPACITORS

| | | |
|---|---|---|
| | C1688 | CCSRCH180J50 |
| | C1687 | CCSRCH220J50 |
| | C1885, C1886 | CCSRCH470J50 |
| | C1887, C1896 | CCSRCH471J50 |
| | C1681 | CEAT470M16 |
| | C1890 | CEAT470M25 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | C1680, C1697, C1857, C1858 | | CKSRYB103K50 |
| | C1883, C1884, C1888, C1897 | | CKSRYB103K50 |
| | C1683-C1686, C1689, C1690, C1698 | | CKSRYB104K16 |
| | C1889 | | CKSRYB105K6R3 |
| | **RESISTORS** | | |
| | Other Resistors | | RS1/16S###J |
| | **OTHERS** | | |
| | X1681 (12.0MHz) | | ASS7047 |
| | CN1801 | 19P FFC CONNECTOR | 52045-0945 |
| | JA1802 | 2P PIN JACK | AKB7148 |
| | JA1681 | USB CONNECTOR | DKN1237 |
| | CN1802 | 20P FFC CCONECTOR | VKN1196 |
| | CN1803 | 9P SOCKET | XKP3075 |

## H COMPONENT ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | IC4403 | | BU4094BCF |
| | IC4405, IC4406 | | OPA2652U |
| | IC4404 | | PDC084B |
| | IC4401, IC4402 | | TC74LVX4053FT |
| ⚠ | Q4406 | | 2SA1576A |
| | Q4407-Q4412 | | 2SA1576A |
| ⚠ | Q4405 | | 2SC4081 |
| | Q4415 | | 2SC4081 |
| | Q4404 | | DTC124EUA |
| | **COILS AND FILTERS** | | |
| | L4401, L4403 | | LAU100J |
| | L4402 | | LAU330J |
| | **CAPACITORS** | | |
| | C4442 (1000u/10V) | | ACH7194 |
| | C4420 | | CCSRCH101J50 |
| | C4411 | | CCSRCH150J50 |
| | C4414 | | CCSRCH180J50 |
| | C4416, C4417 | | CCSRCH240J50 |
| | C4424, C4432, C4438 | | CCSRCH470J50 |
| | C4458 | | CEANP100M16 |
| | C4444-C4447, C4449, C4451-C4453 | | CEAT100M50 |
| | C4439-C4441, C4443, C4448, C4450 | | CEAT101M16 |
| | C4454, C4455 | | CEAT101M16 |
| | C4405, C4406, C4412, C4415 | | CKSRYB103K50 |
| | C4428-C4431, C4433-C4437 | | CKSRYB103K50 |
| | C4418, C4419, C4421, C4423 | | CKSRYB473K50 |
| | **RESISTORS** | | |
| | Other Resistors | | RS1/16S###J |
| | **OTHERS** | | |
| | X4401 (14.32MHz) | | ASS1056 |
| | CN4403 | 12P FFC CONNECTOR | 52045-1245 |
| | JA4401-JA4403 | 3P PIN JACK | VKB1151 |
| | CN4402 | 13P SOCKET | XKP3077 |
| | CN4401 | 19P SOCKET | XKP3080 |

## I VIDEO ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | IC3205 | | LA7213 |
| | IC3203 | | NJM2279M |
| | IC3206, IC3207 | | NJM2595M |
| | IC3204 | | NJM2596M |
| | IC3201, IC3202 | | TC74HC4053AFT |
| | IC3208, IC3209 | | TK15420M |
| | Q3201-Q3203 | | 2SC4081 |
| | Q3204-Q3207 | | DTC124EUA |
| | D3203 | | 1SS355 |
| | D3201, D3202 | | DAN202K |
| | **CAPACITORS** | | |
| | C3254, C3268, C3269 (1000u/10V) | | ACH7194 |
| | C3204, C3216, C3231 | | CCSRCH101J50 |
| | C3211, C3225-C3227, C3238-C3240 | | CCSRCH181J50 |
| | C3242-C3244 | | CCSRCH181J50 |
| | C3234 | | CCSRCH330J50 |
| | C3208 | | CCSRCH470J50 |
| | C3210, C3222, C3224 | | CEAT100M50 |
| | C3245-C3247, C3249-C3251 | | CEAT101M16 |
| | C3255-C3257, C3259-C3263, C3270 | | CEAT101M16 |
| | C3272-C3274, C3282, C3283 | | CEAT101M16 |
| | C3290, C3291 | | CEAT101M16 |
| | C3248, C3258, C3271, C3275 | | CEAT1R0M50 |
| | C3264 | | CEAT3R3M50 |
| | C3229, C3280, C3281, C3288, C3289 | | CKSRYB103K50 |
| | C3201, C3212, C3215, C3220, C3228 | | CKSRYB104K16 |
| | C3230, C3237, C3241 | | CKSRYB104K16 |
| | C3202, C3203, C3205-C3207 | | CKSRYB473K50 |
| | C3213, C3214, C3218, C3219 | | CKSRYB473K50 |
| | C3232, C3233, C3235, C3236 | | CKSRYB473K50 |
| | **RESISTORS** | | |
| | Other Resistors | | RS1/16S###J |
| | **OTHERS** | | |
| | JA3204 | CMOB. JACK (S+1P) | AKB7159 |
| | JA3201-JA3203 | COMB. JACK (2S+2P) | AKB7160 |
| | CN3202 | CONNECTOR | B10B-PH-K |
| | JA3205 | 1P PIN JACK | VKB1156 |
| | CN3201 | 11P SOCKET | XKP3076 |
| | CN3203 | 15P SOCKET | XKP3078 |

## J MAIN CONTROL ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | IC651 | | BU1924F |
| | IC502, IC503 | | BU4094BCF |
| | IC202 | | NJM4558MD |
| | IC501 | | PEG040B8 |
| | IC511 | | TC74VHC08FT |
| | IC302 | | TC74VHCT244AFT |
| | IC103 | | TC9163AF |
| | IC201 | | TC9164AF |
| | IC104 | | TC9215AF |
| | IC101 | | TC9274F-019 |
| | IC701-IC704 | | TC94A07F |
| | IC102, IC105, IC106, IC711-IC714 | | UPC4570G2-A |
| | Q651 | | 2SA1036K |
| | Q101, Q102 | | 2SC3326 |
| | Q653 | | 2SC4081 |
| | Q601 | | 2SD1858X |
| | Q104, Q105 | | 2SK208 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | Q103, Q106, Q251, Q511 | | DTA124EUA |
| | Q107 | | DTC124EUA |
| | Q501, Q652 | | DTC143EUA |
| | D501, D502, D511, D521-D524 | | 1SS355 |
| | D531, D532, D602, D821, D822 | | 1SS355 |
| | D831, D832 | | 1SS355 |
| | D601 | | UDZS10(B) |

## COILS AND FILTERS

| | | |
|---|---|---|
| | L501 | LCYA2R2J2520 |
| | L651 | LFCA2R2J |
| ⚠ | L891-L897 | QTL1013 |
| | L898, L900-L902 | QTL1013 |

## CAPACITORS

| | | |
|---|---|---|
| | C113, C114, C125-C127 | CCSRCH101J50 |
| | C151-C153, C201-C203 | CCSRCH101J50 |
| | C725-C727, C745-C747 | CCSRCH101J50 |
| | C765-C767, C785-C787 | CCSRCH101J50 |
| | C103-C112, C115, C116 | CCSRCH221J50 |
| | C651, C652 | CCSRCH270J50 |
| | C117, C118, C139, C140 | CCSRCH470J50 |
| | C719, C720, C739, C740 | CCSRCH680J50 |
| | C759, C760, C779, C780 | CCSRCH680J50 |
| | C131, C132, C163, C167 | CEAT100M50 |
| | C172, C173, C621, C622 | CEAT100M50 |
| | C701, C702, C713, C714 | CEAT100M50 |
| | C733, C734, C753, C754 | CEAT100M50 |
| | C773, C774 | CEAT100M50 |
| | C654 | CEAT101M10 |
| | C303, C304, C602 | CEAT101M16 |
| | C211, C212 | CEAT1R0M50 |
| | C506, C513 | CEAT221M10 |
| | C505, C655 | CEAT2R2M50 |
| | C503 | CEAT331M10 |
| | C717, C718, C721, C722 | CEAT470M25 |
| | C737, C738, C741, C742 | CEAT470M25 |
| | C757, C758, C761, C762 | CEAT470M25 |
| | C777, C778, C781, C782 | CEAT470M25 |
| | C133, C134 | CEAT470M50 |
| | C511 | CEAT471M10 |
| | C748, C749, C768, C769 | CEVW100M16 |
| | C788, C789 | CEVW100M16 |
| | C510 | CKSQYF105Z16 |
| | C601 | CKSQYF225Z16 |
| | C653, C901, C903 | CKSRYB102K50 |
| | C128, C129, C137, C138 | CKSRYB103K50 |
| | C155-C157, C162, C166, C176 | CKSRYB103K50 |
| | C178, C204, C205, C213, C214 | CKSRYB103K50 |
| | C251, C302, C502, C507, C509 | CKSRYB103K50 |
| | C514, C515, C535, C540, C598 | CKSRYB103K50 |
| | C711, C712, C723, C724 | CKSRYB103K50 |
| | C731, C732, C743, C744 | CKSRYB103K50 |
| | C751, C752, C763, C764 | CKSRYB103K50 |
| | C771, C772, C783, C784, C891 | CKSRYB103K50 |
| | C908 | CKSRYB103K50 |
| | C896, C900, C902 | CKSRYB104K16 |
| | C512, C656 | CKSRYB472K50 |
| | C154, C599, C821, C831 | CKSRYB473K50 |
| | C658 | CKSRYB561K50 |
| | C161, C164, C174, C175 | CKSRYF104Z25 |
| | C508 (1.0F/5.5V) | PCH1132 |

## RESISTORS

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

## OTHERS

| | | |
|---|---|---|
| | X651 (4.332MHz) | ASS7004 |
| | X501 (15.7MHZ) | ASS7032 |
| | CN552 10PFFC CONNECTOR | 52045-1045 |
| | CN601 11P FFC CONNECTOR | 52045-1145 |
| | CN801 24P FFC CONNECTOR | 52045-2445 |
| | CN501 32P FFC CONNECTOR | 52045-3245 |
| | CN201 7P PLUG | AKP7056 |
| | CN103 9P PLUG | AKP7057 |
| | CN102 13P PLUG | AKP7059 |
| | CN101 15P PLUG | AKP7060 |
| | CN3, CN351 7P SOCKET | AKP7067 |
| | CN2 9P SOCKET | AKP7068 |
| | CN502 19P SOCKET | AKP7073 |
| | CN302 21P SOCKET | AKP7074 |
| | CN551 KR CONNECTOR | B8B-PH-K |
| | CN1 3P PLUG | KM250NA3L |
| | J602 CONNECTOR ASSY | PF10PG-B10 |
| | JA594 REMOTE CONTROL JACK | RKN1004 |
| | JA592, JA593 REMOTE CONTROL JACK | RKN1026 |
| | 551 PCB BINDER | VEF1040 |
| | JA111-JA113 4P PIN JACK | VKB1133 |
| | CN301 21P FFC CONNECTOR | VKN1197 |
| | JA591 MINI JACK (4P) | XKN3015 |

# K MIC & F.OPT IN ASSY

## COILS AND FILTERS

| | | |
|---|---|---|
| | L1601 | ATL7002 |
| ⚠ | L1602, L1603 | QTL1013 |

## CAPACITORS

| | | |
|---|---|---|
| | C1601, C1606 | CCSRCH471J50 |
| | C1603 | CEAL470M16 |
| | C1611 | CKSRYB102K50 |
| | C1602, C1612, C1614 | CKSRYB103K50 |

## RESISTORS

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

## OTHERS

| | | |
|---|---|---|
| | CN1601 4P FFC CONNECTOR | 52044-0445 |
| | J1601 CORD WITH PLUG | ADX7417 |
| | JA1601 OPTICAL LINK IN | GP1FA502RZ |
| | JA1606 REMOTE CONTROL JACK | RKN1004 |
| | CN1602 KR CONNECTOR | S3B-PH-K |

# L MIC AMP ASSY

## SEMICONDUCTORS

| | | |
|---|---|---|
| ⚠ | IC4751 | NJM78L05A |
| | IC4752 | UPC4570G2-A |
| | D4751, D4752 | UDZS5R1(B) |

## CAPACITORS

| | | |
|---|---|---|
| | C4753 | CCSRCH101J50 |
| | C4754 | CCSRCH330J50 |
| | C4751, C4752, C4755-C4757 | CEAT100M50 |
| | C4758, C4762-C4765 | CKSRYB473K50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | **RESISTORS** | |
| | R4756 | | RD1/4MUF471J |
| | Other Resistors | | RS1/16S###J |
| | | **OTHERS** | |
| | CN4752 | 4P JUMPER CONNECTOR | 52147-0410 |
| | CN4751 | KR CONNECTOR | B3B-PH-K |
| | KN4751 | EARTH METAL FITTING | VNF1084 |
| | | **M DSP CONNECTION ASSY** | |
| | | **SEMICONDUCTORS** | |
| | IC1651, IC1653 | | TC74LVX244FT |
| | | **COILS AND FILTERS** | |
| | L1651, L1652 | | QTL1013 |
| | | **CAPACITORS** | |
| | C1651 | | CKSRYB103K50 |
| | C1653 | | CKSRYB104K16 |
| | | **RESISTORS** | |
| | Other Resistors | | RS1/16S###J |
| | | **OTHERS** | |
| | CN1651 | B TO B CONNECTOR 50P | AKP7177 |
| | CN1652-CN1654 | 17P SOCKET | XKP3079 |
| | | **N POWER AMP IN ASSY** | |
| | | **SEMICONDUCTORS** | |
| | Q4001 | | 2SC2412K |
| | D4001 | | 1SS355 |
| | | **CAPACITORS** | |
| | C4002 | | CKSRYB104K16 |
| | C4001 | | CKSRYB223K50 |
| | | **RESISTORS** | |
| | Other Resistors | | RS1/16S###J |
| | | **OTHERS** | |
| | 4001 | 10P CABLE HOLDER | 51048-1000 |
| | CN4001 | 24P FFC CONNECTOR | 52044-2445 |
| | J12 | JUMPER WIRE 10P | D20PYY1010E |
| | CN4004 | 3PIN CONNECTOR | S3B-EH |
| | CN4003 | 17P PLUG | XKP3068 |
| | CN4002 | 19P PLUG | XKP3069 |
| | | **O FAN CONNECTION ASSY** | |
| | | **SEMICONDUCTORS** | |
| ⚠ | IC4701, IC4702 | PROTECTOR(200mA) | AEK7023 |
| | | **OTHERS** | |
| | 4701 | 9P CABLE HOLDER | 51048-0900 |
| | CN4701 | 6P JUMPER CONNECTOR | 52147-0610 |
| | CN4702 | 3P TOP POST | B3B-EH |
| | J4701 | JUMPER WIRE 9P | D20PYY0915E |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | **P FAN DRIVE ASSY** | |
| | | **SEMICONDUCTORS** | |
| | Q4056 | | 2SA1037K |
| | Q4051 | | 2SC4793D1 |
| | Q4052 | | DTA124EK |
| | Q4055 | | DTC114EK |
| | Q4053 | | DTC124EK |
| ⚠ | D4051, D4052 | | 1SR154-400 |
| | D4058, D4059 | | 1SS355 |
| | D4055 | | UDZS12(B) |
| | D4053 | | UDZS27(B) |
| | D4057 | | UDZS5R1(B) |
| | | **CAPACITORS** | |
| | C4054 | | CEAT101M16 |
| | C4052 | | CEAT1R0M50 |
| | C4055, C4056 | | CEAT331M63 |
| | C4051 | | CEAT471M35 |
| | C4053 | | CKSRYB103K50 |
| | | **RESISTORS** | |
| | Other Resistors | | RS1/16S###J |
| | | **OTHERS** | |
| | CN4051 | 9P JUMPER CONNECTOR | 52147-0910 |
| | CN4054 | 10P JUMPER CONNECTOR | 52147-1010 |
| | | **Q DSP ASSY** | |
| | | **SEMICONDUCTORS** | |
| | IC201 | | AK4114VQ |
| | IC561 | | AK4382AVT |
| | IC501, IC521, IC541 | | AK4383VT |
| | IC101 | | AK5380VT |
| | IC301, IC401 | | DSPC56367PV150 |
| | IC451 | | IC61LV25616-12T |
| | IC302 | | IC61LV6416-12T |
| | IC303 | | IC63LV1024-12T |
| ⚠ | IC901 | | NJM2391DL1-33 |
| | IC601, IC621, IC641, IC661, IC681 | | NJM4565MD |
| ⚠ | IC902 | | NJU7223DL1-18 |
| | IC471 | | PD8133A |
| | IC701 | | TC74VHC157FT |
| | IC304 | | TC74VHCU04FT |
| | IC503, IC705, IC706 | | TC7SH04FU |
| | IC305 | | TC7WH125FU |
| | Q681, Q682 | | 2SK208 |
| | Q683, Q701, Q971, Q972, Q974 | | UN5112 |
| | Q684, Q702, Q973 | | UN5212 |
| | Q601, Q621, Q641, Q661 | | XP4506 |
| | D681, D682, D721 | | 1SS355 |
| | D702 | | DAN202K |
| | D701, D971, D972 | | DAP202K |
| | D101-D104 | | RB501V-40 |
| | | **COILS AND FILTERS** | |
| | L301-L304, L401, L402, L451 | | ATL7002 |
| | L471, L904, L906, L907 | | ATL7002 |
| | L101-L104, L201-L203 | | QTL1013 |
| | L305, L306, L501, L503, L511 | | QTL1013 |
| | L521, L531, L541, L551, L561 | | QTL1013 |
| | L571, L701, L705, L706 | | QTL1013 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | **CAPACITORS** | |
| | C339, C340 | | CCSRCH100D50 |
| A | C202 | | CCSRCH150J50 |
| | C623, C625, C643-C646 | | CCSRCH151J50 |
| | C663-C666 | | CCSRCH151J50 |
| | C201 | | CCSRCH220J50 |
| | C204, C206, C209, C301, C302 | | CCSRCH471J50 |
| | C304, C306, C308, C309, C312 | | CCSRCH471J50 |
| | C314, C316, C318, C319 | | CCSRCH471J50 |
| | C321, C322, C325, C326 | | CCSRCH471J50 |
| | C329, C330, C332, C333, C335 | | CCSRCH471J50 |
| | C345, C346, C402, C404-C408 | | CCSRCH471J50 |
| | C410-C418, C420-C422 | | CCSRCH471J50 |
| B | C424-C426, C471 | | CCSRCH471J50 |
| | C603-C606 | | CCSRCH820J50 |
| | C111, C112, C502, C522, C542 | | CEVW100M16 |
| | C562, C607, C608, C627, C628 | | CEVW100M16 |
| | C647, C648, C667, C668 | | CEVW100M16 |
| | C681, C682 | | CEVW100M16 |
| | C104, C105, C551, C907, C909 | | CEVW101M16 |
| | C106 | | CEVW2R2M50 |
| | C901, C902 | | CEVW330M25 |
| | C210, C341, C401 | | CEVW470M6R3 |
| | C212, C614, C618, C624, C626 | | CKSRYB102K50 |
| C | C683-C685, C689, C693, C695 | | CKSRYB102K50 |
| | C927 | | CKSRYB102K50 |
| | C337, C343, C349, C429, C503 | | CKSRYB103K50 |
| | C619, C620, C677, C678, C701 | | CKSRYB103K50 |
| | C711-C716, C747, C921, C922 | | CKSRYB103K50 |
| | C941 | | CKSRYB103K50 |
| | C101-C103, C205, C207, C208 | | CKSRYB104K16 |
| | C211, C305, C307, C310, C311 | | CKSRYB104K16 |
| | C313, C315, C324, C331, C334 | | CKSRYB104K16 |
| | C352, C409, C419, C423, C427 | | CKSRYB104K16 |
| | C451, C452, C501, C521, C541 | | CKSRYB104K16 |
| D | C561, C591, C630, C705, C706 | | CKSRYB104K16 |
| | C906, C908 | | CKSRYB104K16 |
| | C303, C338, C348, C403, C599 | | CKSRYB105K6R3 |
| | C702 | | CKSRYB105K6R3 |
| | C109, C110, C622 | | CKSRYB222K50 |
| | C601, C602, C609, C610 | | CKSRYB332K50 |
| | C621, C641, C642, C661, C662 | | CKSRYB392K50 |
| | C629, C649, C650, C669, C670 | | CKSRYB472K50 |
| | C971 | | CKSRYB472K50 |
| | C926 | | CKSRYB473K16 |
| E | C203 | | CKSRYB474K10 |
| | C323, C428 | | CKSRYB563K16 |
| | C107, C611-C613, C615 | | CKSRYF104Z25 |
| | C671, C672, C694, C696-C698 | | CKSRYF104Z25 |
| | **RESISTORS** | | |
| | R851 | | RAB4C101J |
| | R204, R225, R226, R229, R701 | | RAB4C104J |
| | R712 | | RAB4C104J |
| | R221 | | RS1/16S1802F |
| | Other Resistors | | RS1/16S###J |
| F | **OTHERS** | | |
| | CN102 | B TO B CONNECTOR 50P | AKP7176 |
| | X201 (24MHz) | | ASS7025 |
| | X301 (33MHz) | | ASS7040 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | CN702 | 10P FFC CONNECTOR | VKN1414 |
| | CN101 | 20P FFC CONNECTOR | VKN1424 |
| | CN601 | 21P FFC CONNECTOR | VKN1425 |
| | CN701 | 22P FFC CONNECTOR | VKN1426 |
| | KN931 | EARTH METAL FITTING | VNF1109 |

## R1394 ASSY

| | | | |
|---|---|---|---|
| | | **SEMICONDUCTORS** | |
| | IC302 | | K4S641632H-TC75 |
| ⚠ | IC1 | | NJM2391DL1-33 |
| | IC303 | | NJU7093AF |
| | IC101 | | PD5787A |
| | IC301 | | PD8112A |
| | IC103 | | PST9245 |
| ⚠ | IC410 | | S-L2980A25MC-C6K |
| | IC401 | | SM5819AF |
| | IC405 | | TC74VHC541FT |
| | IC104 | | TC74VHCT125AFT |
| | IC205 | | TC7SH08FU |
| | IC404 | | TC7SZ125FU |
| | IC409 | | TC7SZ126FU |
| | IC201 | | TSB43CA42ZGW |
| | Q101, Q301 | | DTA124EUA |
| | Q401 | | DTA143EUA |
| | D102 | | RB501V-40 |
| | **COILS AND FILTERS** | | |
| ⚠ | L204-L207 | | ATH7015 |
| | L1, L101, L201-L203 | | ATL7002 |
| | L301, L302, L401, L403-L405 | | ATL7002 |
| | **CAPACITORS** | | |
| | C329 (10u/6.3V) | | ACG7046 |
| | C2, C401, C428 (220u/6.3V) | | ACH7195 |
| | C242, C243 | | CCSRCH221J50 |
| | C402 | | CCSRCH471J50 |
| | C103, C206, C217, C232, C304 | | CEVW101M16 |
| | C321, C419 | | CEVW101M16 |
| | C113, C211, C213, C215, C216 | | CKSRYB102K50 |
| | C310, C324 | | CKSRYB102K50 |
| | C101, C111 | | CKSRYB103K50 |
| | C1, C102, C104-C110 | | CKSRYB104K16 |
| | C201-C205, C207, C209, C210 | | CKSRYB104K16 |
| | C212, C214, C218-C226, C235 | | CKSRYB104K16 |
| | C241, C246-C249, C301-C303 | | CKSRYB104K16 |
| | C305, C309, C311, C315-C320 | | CKSRYB104K16 |
| | C322, C323, C325, C327, C333 | | CKSRYB104K16 |
| | C404, C405, C408-C412 | | CKSRYB104K16 |
| | C415, C416, C420, C424, C427 | | CKSRYB104K16 |
| | C244, C245, C326 | | CKSRYB105K6R3 |
| | C330 | | CKSRYB472K50 |
| | C328 | | CKSRYB474K10 |
| | **RESISTORS** | | |
| | R119, R127-R130, R205 | | RAB4C101J |
| | R230-R233, R245, R246, R445 | | RAB4C101J |
| | R122 | | RAB4C103J |
| | R407 | | RAB4C221J |
| | R308, R339, R340, R343-R347 | | RAB4C470J |
| | R350 | | RAB4C470J |
| | R135-R138, R206, R216 | | RAB4C472J |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | | R220, R221, R223, R234 | RAB4C472J |
| | | R238-R240 | RAB4C472J |
| | | R302, R402 | RAB4C680J |
| | | R275, R276 | RS1/16S5101F |
| | | R267-R274 | RS1/16S56R0D |
| | | R213 | RS1/16S6341D |
| | | Other Resistors | RS1/16S###J |

**OTHERS**

| | | | |
|---|---|---|---|
| | | X101 (6.14MHz) | VSS1179 |
| | | X302 (22.5792MHz) | ASS7054 |
| | | X201 (24.5760MHz) | ASS7055 |
| | CN101 | 7P CONNECTOR | RKN1048 |
| | CN402 | 10P CONNECTOR | VKN1414 |
| | CN401 | 22P CONNECTOR | VKN1426 |
| | JA201, JA202 | 1394 TERMINAL | VKN1800 |

## S DISPLAY ASSY

**SEMICONDUCTORS**

| | | | |
|---|---|---|---|
| | | IC3000 | PEG041B |
| | | IC3002 | RPM7140-H4 |
| | | IC3001 | TC7W53FU |
| | | Q3003 | 2SA1037K |
| | | Q3001, Q3002 | DTC124EK |
| | | Q3000 | FMA1A |
| | | Q3004 | HN1C01FU |
| | | D3002-D3008 | 1SS355 |
| | | D3001 | BR5064X |
| | | D3009 | DAN202K |
| | | D3011 | NSPB510-2283 |
| | | D3000 | SLI-343DUW |
| | | D3010 | UDZS6R2(B) |

**COILS AND FILTERS**

| | | | |
|---|---|---|---|
| | | L3000 | ATL7002 |

**SWITCHES AND RELAYS**

| | | | |
|---|---|---|---|
| | | S3000-S3017 | VSG1024 |

**CAPACITORS**

| | | | |
|---|---|---|---|
| | | C3003, C3004, C3007, C3024, C3025 | CCSRCH101J50 |
| | | C3020, C3021, C3026, C3027 | CEJQ100M16 |
| | | C3028, C3029 | CEJQ101M10 |
| | | C3008, C3012, C3035 | CEJQ101M6R3 |
| | | C3022, C3023 | CEJQ330M25 |
| | | C3000-C3002 | CKSRYB102K50 |
| | | C3009, C3011, C3032-C3034 | CKSRYB103K50 |
| | | C3036, C3037 | CKSRYB103K50 |
| | | C3006, C3031 | CKSRYB104K16 |
| | | C3010 | CKSRYB153K50 |
| | | C3030 | CKSRYF104Z50 |

**RESISTORS**

| | | | |
|---|---|---|---|
| | | Other Resistors | RS1/16S###J |

**OTHERS**

| | | | |
|---|---|---|---|
| | | X3000 (4.19MHz) | ASS7042 |
| | 3008 | 4P CABLE HOLDER | 51048-0400 |
| | 3002 | 5P CABLE HOLDER | 51048-0500 |
| | 3003 | 7P CABLE HOLDER | 51048-0700 |
| | CN3007 | 3P FFC CONNECTOR | 52045-0345 |
| | CN3004 | 4P FFC CONNECTOR | 52045-0445 |
| | CN3005 | 7P FFC CONNECTOR | 52045-0745 |
| | CN3001 | 11P FFC CONNECTOR | 52045-1145 |
| | CN3006 | 32P FFC CONNECTOR | 52045-3245 |
| | V3000 | FL TUBE | AAV7087 |
| | J3008 | JUMPER WIRE 4P | D20PYY0415E |
| | J3002 | JUMPER WIRE 5P | D20PYY0510E |
| | J3003 | JUMPER WIRE 7P | D20PYY0715E |
| | 3001 | FL HOLDER | VNF1085 |

## T VOLUME ASSY

**SWITCHES AND RELAYS**

| | | | |
|---|---|---|---|
| | | S3401 | ASX7037 |
| | | S3402-S3404 | VSG1024 |

**CAPACITORS**

| | | | |
|---|---|---|---|
| | | C3401, C3402 | CKSRYB103K50 |

**RESISTORS**

| | | | |
|---|---|---|---|
| | | Other Resistors | RS1/16S###J |

**OTHERS**

| | | | |
|---|---|---|---|
| | CN3401 | 5P JUMPER CONNECTOR | 52147-0510 |

## U MULTI JOG ASSY

**SWITCHES AND RELAYS**

| | | | |
|---|---|---|---|
| | | S3451 | ASX7038 |
| | | S3452-S3455 | VSG1024 |

**CAPACITORS**

| | | | |
|---|---|---|---|
| | | C3451, C3452 | CKSRYB103K50 |

**RESISTORS**

| | | | |
|---|---|---|---|
| | | Other Resistors | RS1/16S###J |

**OTHERS**

| | | | |
|---|---|---|---|
| | CN3451 | 7P JUMPER CONNECTOR | 52147-0710 |
| | 3452 | 3P CABLE HOLDER | 51048-0300 |
| | J3452 | JUMPER WIRE | D20PYY0310E |

## V HEADPHONE ASSY

**CAPACITORS**

| | | | |
|---|---|---|---|
| | | C1951, C1952 | CKSRYB392K50 |

**RESISTORS**

| | | | |
|---|---|---|---|
| | | Other Resistors | RS1/16S###J |

**OTHERS**

| | | | |
|---|---|---|---|
| | CN1951 | 3P FFC CONNECTOR | 52045-0345 |
| | 1951 | PHONE JACK | AKN7029 |
| | KN1951 | EARTH METAL FITTING | VNF1084 |

## W POWER AMP-L ASSY

**SEMICONDUCTORS**

| | | | |
|---|---|---|---|
| ⚠ | | IC4101, IC4201, IC4301 | PA9009A |
| ⚠ | | IC4102, IC4202, IC4302 | PBD001A |
| ⚠ | | IC4103, IC4203, IC4303, IC4453 | PBD002A |
| | | Q4102, Q4202, Q4302 | 2SA1255 |
| | | Q4101, Q4201, Q4301 | 2SC3326 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | D4102, D4104-D4107, D4202 | | 1SS355 |
| | D4204-D4207, D4302, D4304-D4307 | | 1SS355 |
| | D4101, D4103, D4201, D4203, D4301 | | UDZS10(B) |
| | D4303 | | UDZS10(B) |

**CAPACITORS**

| | | |
|---|---|---|
| | C4106, C4107, C4206, C4207 | ACG7041 |
| | C4306, C4307 (220u/100V) | ACG7041 |
| | C4102, C4202, C4302 | CCSRCH331J50 |
| | C4112, C4113, C4212, C4213 | CCSRCH6R0D50 |
| | C4312, C4313 | CCSRCH6R0D50 |
| | C4114, C4214, C4314 | CEANP1R0M50 |
| | C4401, C4402 | CEAT331M63 |
| | C4110, C4111, C4210, C4211 | CEHAT100M2A |
| | C4310, C4311 | CEHAT100M2A |
| | C4101, C4201, C4301 | CEHAT100M50 |
| | C4103, C4203, C4303 | CEHAT331M10 |
| | C4104, C4105, C4204, C4205 | CEHAT470M63 |
| | C4304, C4305 | CEHAT470M63 |
| | C4108, C4109, C4208, C4209 | CEHAZL470M25 |
| | C4308, C4309 | CEHAZL470M25 |

**RESISTORS**

| | | |
|---|---|---|
| ⚠ | R4131, R4132, R4231, R4232 | ACN7107 |
| ⚠ | R4331, R4332, R4482 (0.1) | ACN7107 |
| ⚠ | R4119, R4219, R4319 (0.22/5W) | ACN7121 |
| | R4112, R4212, R4312 | RN1/10SE3302D |
| | Other Resistors | RS1/16S###J |

**OTHERS**

| | | |
|---|---|---|
| | Y2 LEAD WITH HOUSING | ADX7398 |
| | Y3 LEAD WITH HOUSING | ADX7399 |
| | Y5 LEAD WITH HOUSING | ADX7404 |
| | CN4403 3P TOP POST | B3B-EH |
| | CN4456 10P PLUG | KM250NA10L |
| | KN4401, KN4402 | VNF1084 |
| | ERATH METAL FITTING | |
| | CN4401 17P SOCKET | XKP3079 |

## X POWER AMP-R ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| ⚠ | IC4151, IC4251, IC4351 | PA9009A |
| ⚠ | IC4152, IC4252, IC4352, IC4452 | PBD001A |
| ⚠ | IC4153, IC4253, IC4353 | PBD002A |
| | Q4152, Q4252, Q4352 | 2SA1255 |
| | Q4403, Q4404 | 2SC2412K |
| | Q4151, Q4251, Q4351 | 2SC3326 |
| | D4152, D4154-D4157, D4252 | 1SS355 |
| | D4254-D4257, D4352, D4354-D4357 | 1SS355 |
| | D4151, D4153, D4251, D4253, D4351 | UDZS10(B) |
| | D4353 | UDZS10(B) |

**CAPACITORS**

| | | |
|---|---|---|
| | C4156, C4157, C4256, C4257 | ACG7041 |
| | C4356, C4357 (220u/100V) | ACG7041 |
| | C4152, C4252, C4352 | CCSRCH331J50 |
| | C4162, C4163, C4262, C4263 | CCSRCH6R0D50 |
| | C4362, C4363 | CCSRCH6R0D50 |
| | C4164, C4264, C4364 | CEANP1R0M50 |
| | C4405 | CEAT331M10 |
| | C4403, C4404 | CEAT331M63 |
| | C4160, C4161, C4260, C4261 | CEHAT100M2A |
| | C4360, C4361 | CEHAT100M2A |
| | C4151, C4251, C4351 | CEHAT100M50 |
| | C4153, C4253, C4353 | CEHAT331M10 |
| | C4154, C4155, C4254, C4255 | CEHAT470M63 |
| | C4354, C4355 | CEHAT470M63 |
| | C4158, C4159, C4258, C4259 | CEHAZL470M25 |
| | C4358, C4359 | CEHAZL470M25 |

**RESISTORS**

| | | |
|---|---|---|
| ⚠ | R4181, R4182, R4281, R4282 | ACN7107 |
| ⚠ | R4381, R4382, R4481 (0.1) | ACN7107 |
| ⚠ | R4169, R4269, R4369 (0.22/5W) | ACN7121 |
| | R4162, R4262, R4362 | RN1/10SE3302D |
| | Other Resistors | RS1/16S###J |

**OTHERS**

| | | |
|---|---|---|
| | Y1 LEAD WITH HOUSING | ADX7397 |
| | Y4 LEAD WITH HOUSING | ADX7400 |
| | Y6 LEAD WITH HOUSING | ADX7404 |
| | CN4454 10P PLUG | KM250NA10L |
| | KN4403, KN4404 | VNF1084 |
| | EARTH METAL FITTING | |
| | CN4402 19P SOCKET | XKP3080 |

## Y POWER AMP-C ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| ⚠ | IC4451 | PA9009A |
| | Q4452 | 2SA1255 |
| | Q4451 | 2SC3326 |
| | D4452, D4454-D4457 | 1SS355 |
| | D4451, D4453 | UDZS10(B) |

**CAPACITORS**

| | | |
|---|---|---|
| | C4456, C4457 (220u/100V) | ACG7041 |
| | C4452 | CCSRCH331J50 |
| | C4462, C4463 | CCSRCH6R0D50 |
| | C4464 | CEANP1R0M50 |
| | C4460, C4461 | CEHAT100M2A |
| | C4451 | CEHAT100M50 |
| | C4453 | CEHAT331M10 |
| | C4454, C4455 | CEHAT470M63 |
| | C4458, C4459 | CEHAZL470M25 |

**RESISTORS**

| | | |
|---|---|---|
| ⚠ | R4469 (0.22/5W) | ACN7121 |
| | R4462 | RN1/10SE3302D |
| | Other Resistors | RS1/16S###J |

**OTHERS**

| | | |
|---|---|---|
| | CN4453, CN4455 10P SOCKET | KP250NA10 |

## Z REGULATOR ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| ⚠ | IC2411 | AEK7003 |
| ⚠ | IC2409 | NJM78L05A |
| | IC2410 | NJM78L05A |
| ⚠ | IC2404, IC2405 | NJM78M05FA |
| ⚠ | IC2403 | NJM78M12FA |
| ⚠ | IC2401 | NJM78M15FA |
| ⚠ | IC2407 | NJM78M56FA |
| ⚠ | IC2406 | NJM79M05FA |
| ⚠ | IC2402 | NJM79M15FA |
| ⚠ | Q2401 | 2SA1803 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | Q2402 | | 2SA1803 |
| ⚠ | D2401-D2404, D2407-D2410 | | 1SR154-400 |
| ⚠ | D2418, D2419 | | 1SR154-400 |
| ⚠ | D2415 | | D3SBA20(B) |
| | D2405, D2406, D2413, D2414 | | RB501V-40 |
| | D2420 | | UDZS10(B) |
| | D2421, D2422 | | UDZS15(B) |
| | D2423, D2424 | | UDZS6R2(B) |
| | **CAPACITORS** | | |
| | C2401, C2402 (3300u/35V) | | ACH7191 |
| | C2433 (4700u/16V) | | ACH7192 |
| | C2446 | | CCSRCH101J50 |
| | C2440 | | CEANP470M35 |
| | C2415, C2416 | | CEAT101M16 |
| | C2408 | | CEAT101M25 |
| | C2405, C2406, C2410, C2429 | | CEAT221M35 |
| | C2411, C2412 | | CEAT222M16 |
| | C2435, C2438 | | CEAT2R2M50 |
| | C2443 | | CEAT331M10 |
| | C2442 | | CEAT470M50 |
| | C2441 | | CEAT470M63 |
| | C2436, C2439 | | CEAT471M16 |
| | C2451, C2452 | | CKSRYB102K50 |
| | C2403, C2404, C2407, C2409 | | CKSRYB103K50 |
| | C2413, C2414, C2428, C2434, C2437 | | CKSRYB103K50 |
| | C2453, C2499 | | CKSRYB103K50 |
| | C2424 | | CKSRYB473K50 |
| | C2444 | | CQMBA104J50 |
| | **RESISTORS** | | |
| | R2403 | | RD1/4MUF121J |
| | R2401, R2402 | | RD1/4MUF470J |
| | R2499 | | RS3LMF101J |
| | R2496 | | RS3LMF470J |
| | Other Resistors | | RS1/16S###J |
| | **OTHERS** | | |
| | 2402 | 7P CABLE HOLDER | 51048-0700 |
| | CN2401 | 8P JUMPER CONNECTOR | 52147-0810 |
| | Y2401 | BOARD IN JUMPER | ADX7420 |
| | CN2403 | 4P PLUG | KM200TA4 |
| | CN2415 | 3P SOCKET | KP250NA3 |
| | KN2401-KN2403 | EARTH METAL FITTING | VNF1084 |
| | CN2411, CN2412 | 7P PLUG | XKP3063 |
| | CN2406, CN2414 | 9P PLUG | XKP3064 |
| | CN2405 | 11P PLUG | XKP3065 |
| | CN2407-CN2409 | 17P PLUG | XKP3068 |
| | CN2404, CN2413 | 19P PLUG | XKP3069 |
| | CN2410 | 21P PLUG | XKP3070 |

## AA SP/PS ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| | Q4602, Q4603 | | RN1903 |
| | Q4601 | | RN4903 |
| | D4601-D4610 | | 1SS355 |
| | **COILS AND FILTERS** | | |
| | L4601-L4607 | AF CHOKE COIL | ATH1053 |
| | L4608, L4609 | NOISE FILTER | RTF1167 |
| | **SWITCHES AND RELAYS** | | |
| | RY4601-RY4605 | | ASR7014 |
| | **CAPACITORS** | | |
| ⚠ | C4621, C4622 | | ACH7217 |
| | C4623 | | CEAT101M50 |
| | C4601-C4614 | | CFTNA224J50 |
| | C4625-C4631 | | CQMBA103J50 |
| | **RESISTORS** | | |
| ⚠ | R4621-R4627 | | RD1/2LMF4R7J |
| | R4628-R4632 | | RD1/2VM331J |
| | R4615, R4616 | | RD1/4MUF473J |
| ⚠ | R4601-R4607 | | RS1LMF4R7J |
| ⚠ | R4613, R4614 | | RS1LMF471J |
| ⚠ | R4611, R4612 | | RS2LMF331J |
| | Other Resistors | | RS1/16S###J |
| | **OTHERS** | | |
| | 4601 | 6P CABLE HOLDER | 51048-0600 |
| | 4602 | 8P CABLE HOLDER | 51048-0800 |
| | Y13 | BOARD IN JUMPER | ADX7291 |
| | CN4611 | 8P SPEAKER TERMINAL | AKE7101 |
| | CN4612 | 6P SPEAKER TERMAINAL | AKE7102 |
| | J4602 | JUMPER WIRE 8P | D20PYY0830E |
| | CN4610, CN4613 | 5P PLUG | KM200TA5 |

## AB DIODE ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| ⚠ | D2241, D2242 | | LN6SB60-4003 |

## AC TRANS 2-1 ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| ⚠ | IC2201, IC2202 | PROTECTOR(3.15A) | AEK7016 |
| | Q2201 | | DTC143EUA |
| | Q2202 | | RN4903 |
| ⚠ | D2201 | | S1WB(A)60SD |
| | D2202 | | UDZS16(B) |
| | D2207, D2208 | | UDZS22(B) |
| | D2203-D2206, D2209-D2212 | | UDZS9R1(B) |
| | **CAPACITORS** | | |
| ⚠ | C2202, C2203 (81u/100V) | | ACH1237 |
| | C2207, C2208 (470u/71V) | | ACH7193 |
| | C2209, C2210 | | CEAT101M63 |
| | C2211, C2212 | | CEAT221M63 |
| | **RESISTORS** | | |
| ⚠ | R2205, R2206 | | RS1LMF332J |
| | Other Resistors | | RS1/16S###J |
| | **OTHERS** | | |
| | 2201, 2202 | 6P CABLE HOLDER | 51048-0600 |
| | 2203 | 6P CABLE HOLDER | 51052-0600 |
| | H2201-H2204 | FUSE CLIP | AKR1004 |
| | J2201 | JUMPER WIRE 6P | D20PYY0615E |
| | J10 | JUMPER WIRE | D25PYY0607E |

## AD VH TR ASSY

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | **SEMICONDUCTORS** | | |
| ⚠ | Q2232 | | 2SA1837D1 |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ⚠ | Q2231 | | 2SC4793D1 |
| ⚠ | D2231, D2232 | | 1SR154-400 |

**RESISTORS**

| | | | |
|---|---|---|---|
| | Other Resistors | | RS1/16S###J |

**OTHERS**

| | | | |
|---|---|---|---|
| | CN2231 | 6P LTYPE CONNECTOR | KPD6L |

## AE TRANS2-2 ASSY

**SEMICONDUCTORS**

| | | | |
|---|---|---|---|
| ⚠ | IC2251, IC2252 | PROTECTOR(3.15A) | AEK7016 |
| ⚠ | IC2253 | PROTECTOR(5A) | AEK7019 |

**CAPACITORS**

| | | | |
|---|---|---|---|
| | C2251-C2253 | | CQMBA104J50 |

**RESISTORS**

| | | | |
|---|---|---|---|
| ⚠ | R2251, R2252 | | RD1/4MUF100J |

**OTHERS**

| | | | |
|---|---|---|---|
| | 2251 | 7P CABLE HOLDER | 51048-0700 |

## AF TRANS 1 ASSY

TRANS1 ASSY has no service parts.

## AG PRIMARY ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| ⚠ | IC2001 | NJM78M56FA |
| | Q2001 | KRC101M |
| | D2002, D2004, D2005 | 1SS355 |
| ⚠ | D2001 | S1WB(A)60SD |
| | D2003 | UDZS5R1(B) |

**COILS AND FILTERS**

| | | | |
|---|---|---|---|
| | L2002, L2003 | FERRITE BEAD | VTH1013 |
| ⚠ | L2001 | LINE FILTER | XTF3004 |

TRANSFORMERS

| | | | |
|---|---|---|---|
| ⚠ | T2001 | | ATT7040 |

**SWITCHES AND RELAYS**

| | | | |
|---|---|---|---|
| ⚠ | RY2001 | | ASR7025 |

**CAPACITORS**

| | | | |
|---|---|---|---|
| ⚠ | C2001, C2002 (0.01u/275V) | | ACE7013 |
| ⚠ | C2003 (10000pF/250V) | | ACG7033 |
| | C2008 | | CEAT102M25 |
| | C2009 | | CEAT221M25 |
| | C2005-C2007, C2011, C2012 | | CKSRYB103K50 |
| | C2004 | | CQMA103J50 |

**RESISTORS**

| | | | |
|---|---|---|---|
| | R2002 | | RD1/2VM101J |
| | Other Resistors | | RS1/16S###J |

**OTHERS**

| | | | |
|---|---|---|---|
| | CN2002 | 11P FFC CONNECTOR | 52045-1145 |
| ⚠ | 2007 | AC INLET ASSY | ADX7464 |
| ⚠ | CN2005 | 1P AC OUTLET | AKP1034 |
| | H2001, H2002 | FUSE CLIP | AKR7001 |
| | CN2003, CN2004 | 5P SOCKET | KP200TA5L |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | KN2001 | EARTH METAL FITTING | VNF1084 |

## AH VIDEO CONVERT ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| | IC3505 | BU4094BCF |
| | IC3501 | MM1093NF |
| ⚠ | IC3507 | NJM78L09A |
| | IC3514 | TA1270BF |
| | IC3506 | TA8772AN |
| | IC3504 | TC74HC4053AFT |
| | IC3502, IC3503 | TC74LVX4053FT |
| | IC3508 | TC90A49F |
| | IC3509-IC3513 | TK15420M |
| | Q3501, Q3502 | 2SA1576A |
| ⚠ | Q3507 | 2SA1576A |
| ⚠ | Q3503 | 2SC4081 |
| | Q3504-Q3506, Q3508, Q3509 | 2SC4081 |
| | Q3510, Q3511 | DTC124EUA |

**COILS AND FILTERS**

| | | |
|---|---|---|
| | L3507 | ATL7002 |
| | L3502, L3503, L3505, L3506, L3508 | LAU100J |
| | L3501 | LAU1R0J |
| | L3504 | LAU270J |

**CAPACITORS**

| | | |
|---|---|---|
| | C3515, C3522, C3537 | CCSRCH100D50 |
| | C3519 | CCSRCH101J50 |
| | C3578, C3579 | CCSRCH120J50 |
| | C3517 | CCSRCH181J50 |
| | C3552 | CCSRCH390J50 |
| | C3507 | CCSRCH391J50 |
| | C3542 | CCSRCH560J50 |
| | C3510 | CCSRCH6R0D50 |
| | C3615, C3616, C3620, C3625-C3627 | CEVW100M16 |
| | C3646 | CEVW100M16 |
| | C3613, C3617-C3619, C3621 | CEVW101M16 |
| | C3623, C3624, C3628-C3634, C3639 | CEVW101M16 |
| | C3641-C3644, C3647 | CEVW101M16 |
| | C3609, C3635-C3637 | CEVW1R0M50 |
| | C3638, C3640 | CEVW2R2M50 |
| | C3611, C3614, C3645 | CEVW470M16 |
| | C3610, C3612, C3622 | CEVW4R7M35 |
| | C3509 | CKSRYB102K50 |
| | C3504-C3506, C3508, C3511, C3513 | CKSRYB103K50 |
| | C3516, C3523-C3527, C3530, C3531 | CKSRYB103K50 |
| | C3533-C3536, C3538, C3539, C3541 | CKSRYB103K50 |
| | C3550, C3551, C3559, C3563 | CKSRYB103K50 |
| | C3568, C3569, C3571-C3575, C3582 | CKSRYB103K50 |
| | C3588, C3590, C3591, C3595-C3597 | CKSRYB103K50 |
| | C3599, C3604, C3607 | CKSRYB103K50 |
| | C3501-C3503, C3521, C3553-C3558 | CKSRYB104K16 |
| | C3581, C3583-C3586, C3589, C3594 | CKSRYB104K16 |
| | C3598, C3600, C3603, C3605, C3606 | CKSRYB104K16 |
| | C3545-C3547 | CKSRYB105K6R3 |
| | C3514 | CKSRYB122K50 |
| | C3576 | CKSRYB222K50 |
| | C3587 | CKSRYB223K50 |
| | C3577 | CKSRYB224K10 |
| | C3540, C3601, C3602 | CKSRYB474K10 |
| | C3512 | CKSRYB561K50 |

| Mark | No. | Description | Part No. |
|---|---|---|---|

**RESISTORS**

| | | |
|---|---|---|
| | Other Resistors | RS1/16S###J |

**OTHERS**

| | | |
|---|---|---|
| | CN3501 13P PLUG | AKP7059 |
| | CN3502 15P PLUG | AKP7060 |
| | X3503 (3.579545MHz) | ASS1091 |
| | X3501, X3502 (4.433619MHz) | ASS1092 |
| | X3504 (503kHz) | ASS7036 |
| | 3501, 3502 SCREW PLATE | VNE1948 |

## A1 MECHA SW ASSY

**SWITCHES AND RELAYS**

| | | |
|---|---|---|
| | S2491 | ASG1035 |

**CAPACITORS**

| | | |
|---|---|---|
| | C2491, C2492 | CKSRYB103K50 |

**OTHERS**

| | | |
|---|---|---|
| | CN2491 3P JUMPER CONNECTOR | 52147-0310 |

## FM/AM TUNER UNIT

FM/AM TUNER UNIT has no service parts.

# 6. ADJUSTMENT

There is no information to be shown in this chapter.

# 7. GENERAL INFORMATION

## 7.1 DIAGNOSIS

### 7.1.1 PROTECTION CIRCUIT CONTROL SPECIFICATION

#### Microcomputer-related ports

FAN_DRIVE (Expansion IC) : For Fan on/off
TEMP_IN (pin 94)
Input port (A/D) : To detect temperature
FAN_STOP (pin 95)
Input port : To detect Fan forced stop
OL_DET (pin 73)
Input port : To detect overloading at the amplifier (Interrupt port)
DC_DET (pin 63)
Input port : For DC detection
12V_DET (pin 2)
Input port : To detect 12V trigger

The following control processes are activated immediately before the relay system is turned on upon power-on. The time is 4.8 seconds after power-on. (Control of the relay system is enabled 5.2 seconds after power-on.)
Only DC detection is enabled 2 seconds after power-on to activate it before other protection functions.

#### ① Fan control

##### 1) Fan control

| TEMPIN | Temperature (°C) | Fan | Remarks |
|---|---|---|---|
| More than 191 | More than 100 | ON | Mute ON & speaker relay OFF : The warning indication "OVERHEAT" |
| 175 to 190 | 90 to 100 | ON | Leading hold |
| 156 to 174 | 80 to 90 | ON | Mute OFF & speaker relay ON : Normal mode |
| 134 to 155 | 70 to 80 | Leading hold | |
| Less than 133 | Less than 70 | OFF | |

##### 2) Fan detection

If the fan is forcibly stopped, the FAN_DET port becomes "L".
Detecting "L" the microcomputer performs the following operations:
1. System muting on
2. Protection relays off

The warning indication "FAN STOP" appears (flashing) on the FL display.
If this status continues for more than 3 seconds, the power is turned off (for Standby mode).
If the port becomes "H" within 3 seconds, the unit resets automatically.
FAN_DET port performs the chattering check for 1 msec.
In addition, there is the case that detection delays for maximum 20 msec because performs monitor of FAN_DET port with a main loop.

##### 3) Thermistor open detection

If a total (total of 50 times) of A/D value (TEMPIN) for one second is less than 250, the indication "THDCT NG" flashes.
If this status continues for 3 seconds, the power becomes the standby mode.

#### ② Overload detection (abnormality detection)

If the speaker terminals are short-circuited or low-load driving is detected, the OL_DET port becomes "L".
Detecting "L" edge interrupt in an interrupt process, the microcomputer performs the following operations:
1. System muting on
2. Speaker relay off (Control with the display microcomputer)
3. Power off (Standby mode)

#### ③ DC detection (defect detection)

Only DC detection is enabled 2 seconds after power-on.
If there is a fault in the power amplifier or a high-level signal lower than 5 Hz is input, the DC_DET port becomes "L".
Detecting "L" the microcomputer performs the following operations:
1. System muting on
2. Speaker relay off (Control with the display microcomputer)

The warning indication "AMP ERR" appears on the FL display.

If this status continues for more than 3 seconds, the power is turned off (for Standby mode) and flashes the standby LED.
Do not accept the key input afterward.
(Flash it always till turns the primary side off.)
If the port becomes "L" within 3 seconds, the unit resets automatically.

DC_DET port performs the chattering check for 1 msec.
In addition, there is the case that detection delays for maximum 20 msec because performs monitor of DC_DET port with a main loop.
Even if turns the primary side off and turns on once again, standby LED flashes as it is.
If detects DC once and turned the power off, do not accept the key input afterward.
However, power on is possible when the following key was pressed to be able to key input in the protection line and service.
1. Test mode (remote control code : A55F)
2. When the STEREO/DIRECT key and STREAM DIRECT key are both held pressed for 2 seconds.
(It is effective only when turned the power off with DC detection regarding step 2.)

## ④ Diagnostic mode

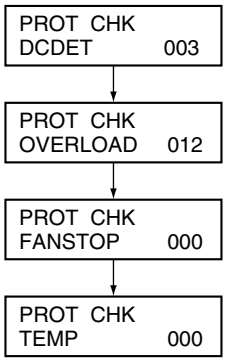
This mode is only for servicing and checking the circuit design, and not open to users.

When the STEREO/DIRECT key and TONE + key are both held pressed for 2 seconds in Standby mode, the power is turned on, and the number of times of each defect or Speaker relay off by abnormality detection is sequentially displayed on the FL display.

Displayed items:

- DC detection
- Overload detection
- Fan detection
- Temperature detection

Hold the STEREO/DIRECT key and TONE + key pressed for 2 seconds in Standby mode.




Display changes automatically every 3 seconds.

When the MULTI CH IN key and TONE – key are both held pressed for 2 seconds in standby mode, all clear the counter for detection.

## ● Protection Process List

| Item | Purpose | Detection Method | Process | Warning Indication | Remarks |
|---|---|---|---|---|---|
| DC detection | To detect amplifier damage (defect status) A process to protect speakers (for protection of connected external devices) | Detects when the DC_DET port becomes "L". | Turns muting on and speaker relay off, then turns off the power after 3 seconds. | Flashing "AMP ERR" for 3 seconds. Flash the standby LED after the power off. | Once detected and turned the power off, input a key never again. |
| AMP overload | To detect overloading (abnormal status) With low-load driving or a short circuit of the speaker terminals (for protection of the amplifier) | Detects when the AMP_OL port becomes "L" (checks by interrupt). | Turns muting on and speaker relay off, and immediately turns off the power. | None | |
| Fan control | Protection function against a temperature rise at the heat sink | Detect temperature more than 100°C. | Turns muting on and speaker relay off. Rotate the fan | Continue flasing with "OVERHEAT" | |
| | | Detect temperature of 90 to 100°C. | Rotate the fan | | Mute, relay and warning indications is leading hold. |
| | | Detect temperature of 74 to 90°C. | Rotate the fan | | Mute off & relay on (normal mode) |
| | | Detect temperature of 69 to 74°C. | Fan is leading hold | | |
| | | A condition except the above. | Stop the fan | | |
| Fan stop | To know that the rotating fan is forcibly stopped | Detects when the FAN_DET port becomes "L". | Turns muting on and speaker relay off, then turns off the power after 3 seconds. | Flashing "FAN STOP" for 3 seconds | If the FAN_DET port becomes "H" within 3 seconds, the unit resets automatically. After the power off, the key input is possible once again. |
| 12V trigger | To detect the shortcircuit of 12V trigger circuit | Detects when the 12V_DET port becomes "H". | Turns 12V_TRG port to "L", then turns off the 12V output. | Flashing "12V TRI ERR" | Only a fan that is assigned 12V TRIG is valid.Release the FL indication with the power on/off. |

## 7.1.2 DIAGNOSTICS OF AMPLIFIER SECTION

When DC detection worked (STBY IND. flashes for a long time) in the protection circuit of foregoing section (or there is not the speaker output, probably only 1CH), failure (damage) of the power amplifier section is considered.

Because this receiver cannot diagnose the amplifier section by an electricity state by structure, please diagnose it in the following steps.

**Caution:**
When release the STBY (flashes) state before repair, Because there is the case that the damage progresses when turns the power on once again, please be careful.

- According to a symptom, perform the following confirmation beforehand.

1. Are not Fuse and IC protector opening it?

2-a. When can turn on electricity, confirm that supply voltage of the point that can measure is appropriate.

2-b. Furthermore, confirm that voltage ((in a no signal) DC and the appropriate signal output) between GND and R4621-4627 (Either of the amplifier side and the speaker terminal side is possible) (Or remove either of CN4601-4604). And limit failure CH.

If was able to limit failure CH, diagnose the CH in the following steps.

- **Use the tester basically and check that each part is not damaged (resistance value / open / short circuit).**

About parts with damaged possibility, explain FL ch to an example in order.

1. R4131, 4132 (ACN7107: 0.1 Ω, 1W chip drain resistor)
   IC 4102, 4103
   (PBD001A: Nch, PBD002A: Pch output POWER MOS Tr.)

2. R4119 (ACN7111: 0.22 Ω .5W ×2 cement source resistor)
   R4117, 4118
   (RS1/16S471J: 470 Ω chip resistor for protection circuit)
   D4101, 4103
   (UDZS10B: 10V Zener diode for current limiting)
   D4102, 4104 (1SS355: Small signal diodes same as above)
   R4110, 4111 (RS1/16S560J: 56 Ω chip gate resistor)
   R4106, 4107
   (RS1/16S101J:100 Ω chip IC4101 power filter resistor)

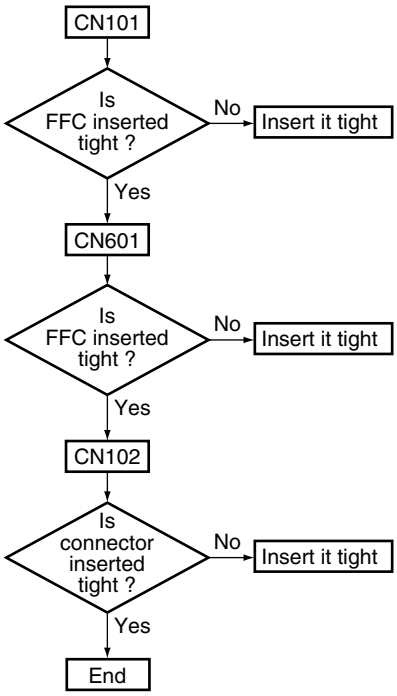
3. IC4101 (PA9009A: Power amplifier with output current bias Voltage step HIC)
   IC4701, 4702
   (AEK7023: 200mA IC protector /FAN CONNECTION Assy)

4. Q2231, 2232 (2SC4793,2SA1837 TO-220 Tr. /VH TR Assy)

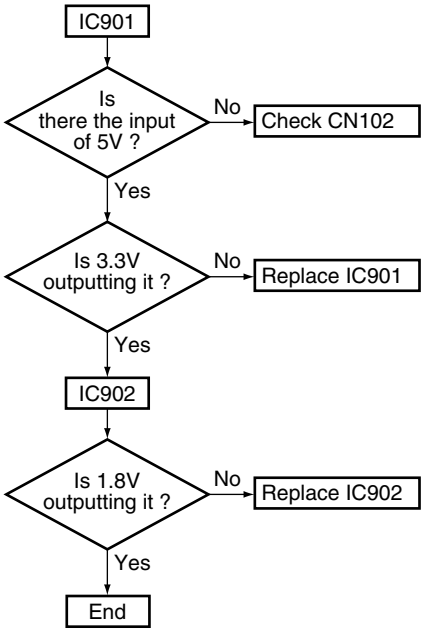
## 7.1.3 TROUBLE SHOOTING

- When a sound is not out in the surround mode with the digital signal input.
- Suppose CR to be poor contact and that is not damaged.
- This shows failure analysis of DSP Assy.

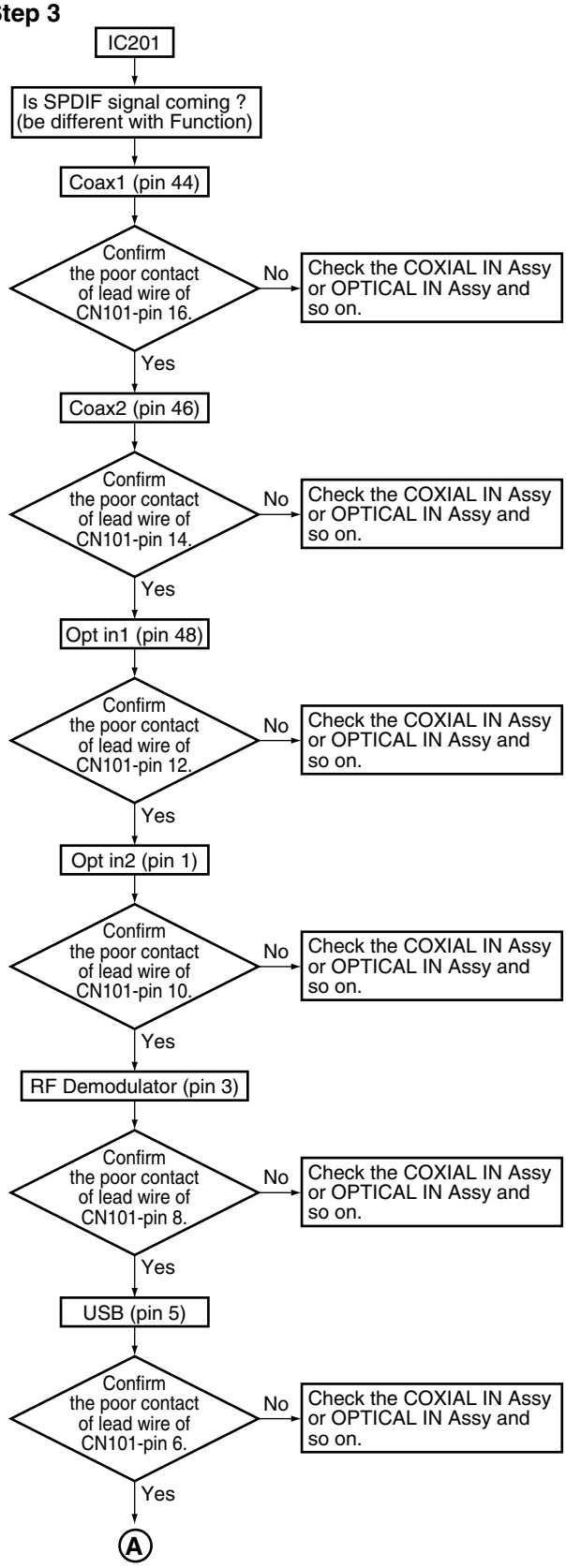
### Step 1

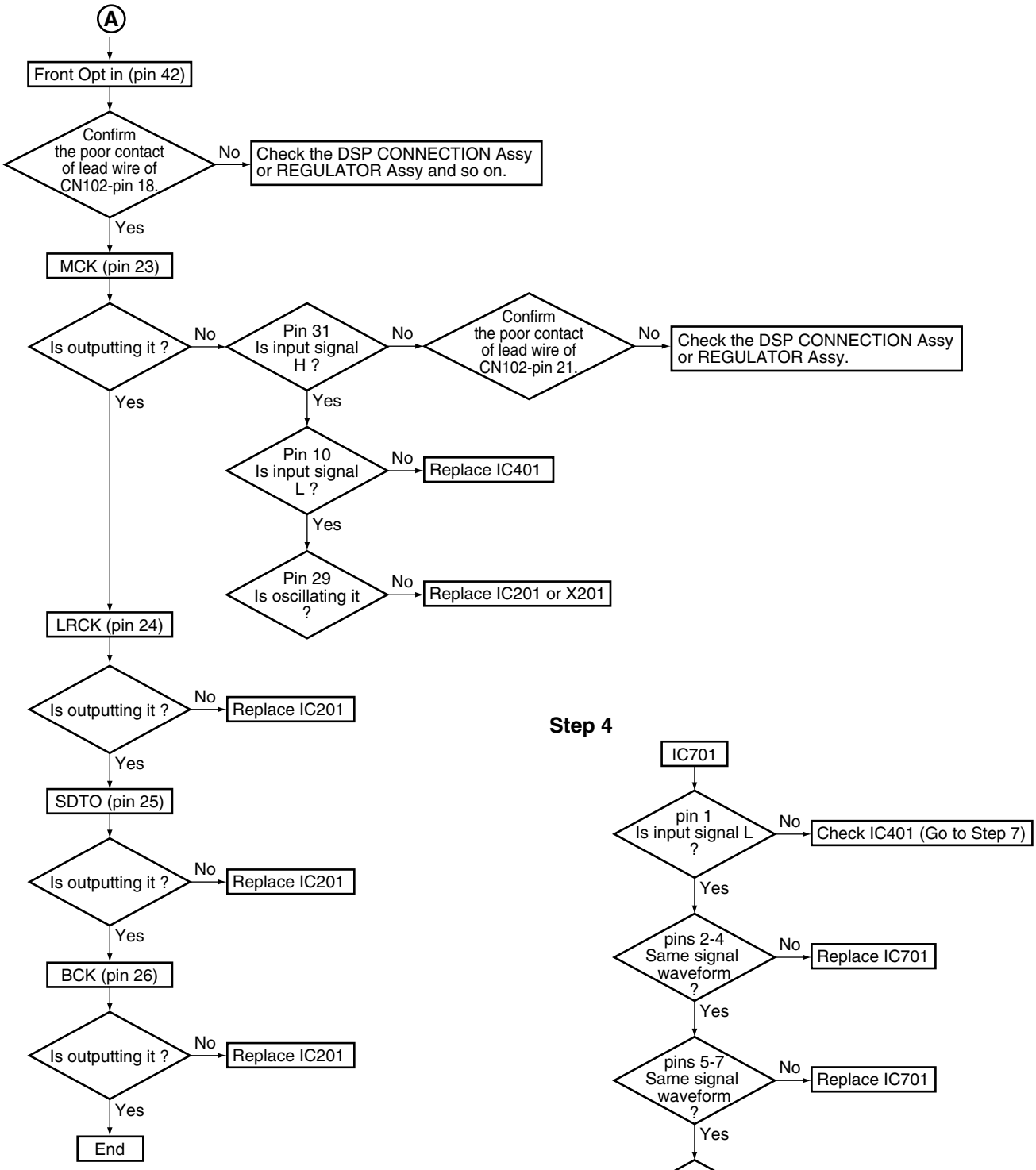



### Step 2

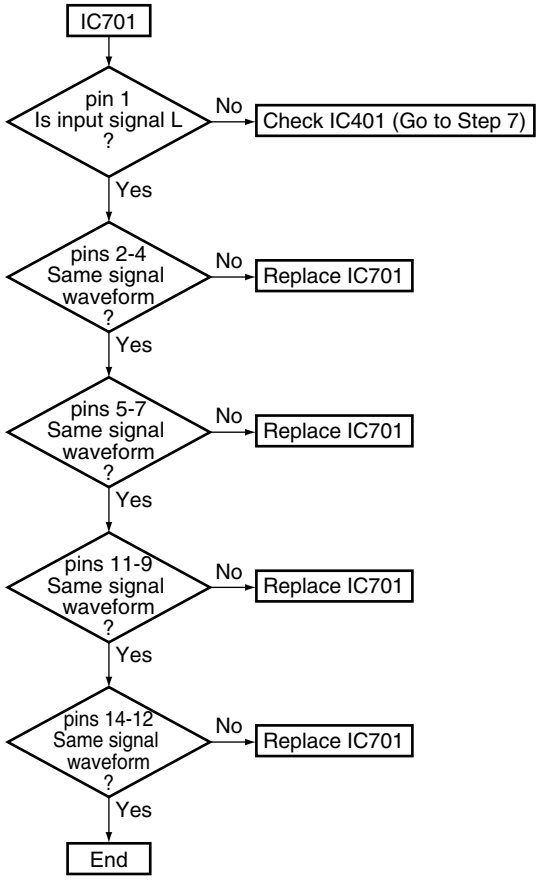



### Step 3

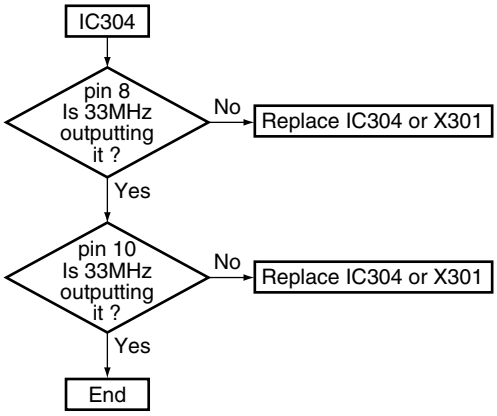

IC201
Is SPDIF signal coming ? (be different with Function)
Coax1 (pin 44)
Confirm the poor contact of lead wire of CN101-pin 16.
No
Check the COXIAL IN Assy or OPTICAL IN Assy and so on.
Yes
Coax2 (pin 46)
Confirm the poor contact of lead wire of CN101-pin 14.
No
Check the COXIAL IN Assy or OPTICAL IN Assy and so on.
Yes
Opt in1 (pin 48)
Confirm the poor contact of lead wire of CN101-pin 12.
No
Check the COXIAL IN Assy or OPTICAL IN Assy and so on.
Yes
Opt in2 (pin 1)
Confirm the poor contact of lead wire of CN101-pin 10.
No
Check the COXIAL IN Assy or OPTICAL IN Assy and so on.
Yes
RF Demodulator (pin 3)
Confirm the poor contact of lead wire of CN101-pin 8.
No
Check the COXIAL IN Assy or OPTICAL IN Assy and so on.
Yes
USB (pin 5)
Confirm the poor contact of lead wire of CN101-pin 6.
No
Check the COXIAL IN Assy or OPTICAL IN Assy and so on.
Yes
A


A
Front Opt in (pin 42)
Confirm the poor contact of lead wire of CN102-pin 18.
No
Check the DSP CONNECTION Assy or REGULATOR Assy and so on.
Yes
MCK (pin 23)
Is outputting it ?
No
Pin 31 Is input signal H ?
No
Confirm the poor contact of lead wire of CN102-pin 21.
No
Check the DSP CONNECTION Assy or REGULATOR Assy.
Yes
Yes
Pin 10 Is input signal L ?
No
Replace IC401
Yes
Pin 29 Is oscillating it ?
No
Replace IC201 or X201
LRCK (pin 24)
Is outputting it ?
No
Replace IC201
Yes
SDTO (pin 25)
Is outputting it ?
No
Replace IC201
Yes
BCK (pin 26)
Is outputting it ?
No
Replace IC201
Yes
End

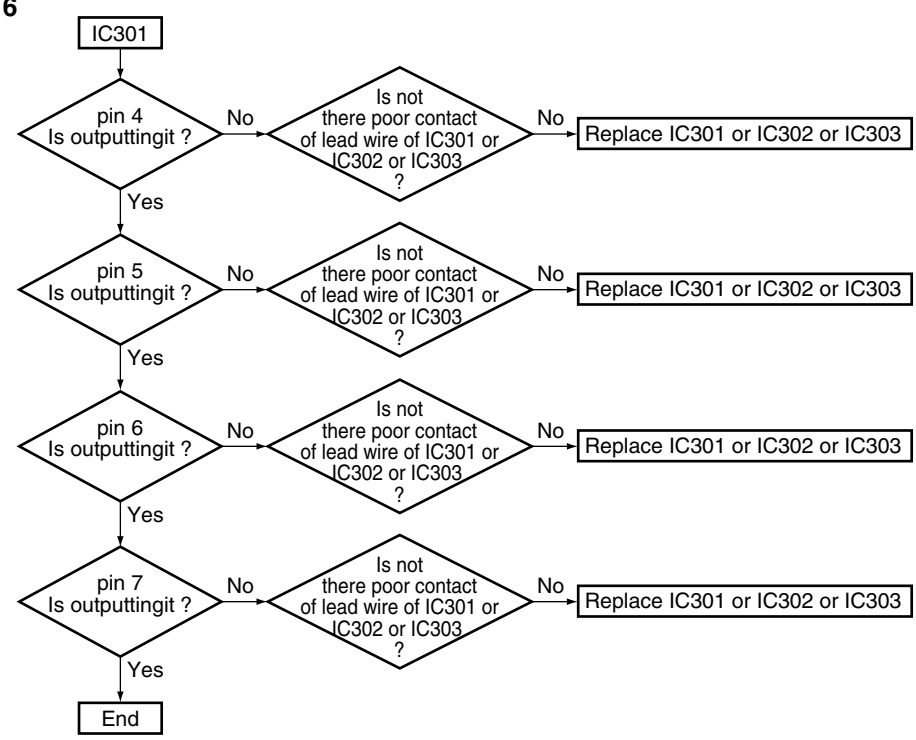
**Step 4**


IC701
pin 1 Is input signal L ?
No
Check IC401 (Go to Step 7)
Yes
pins 2-4 Same signal waveform ?
No
Replace IC701
Yes
pins 5-7 Same signal waveform ?
No
Replace IC701
Yes
pins 11-9 Same signal waveform ?
No
Replace IC701
Yes
pins 14-12 Same signal waveform ?
No
Replace IC701
Yes
End

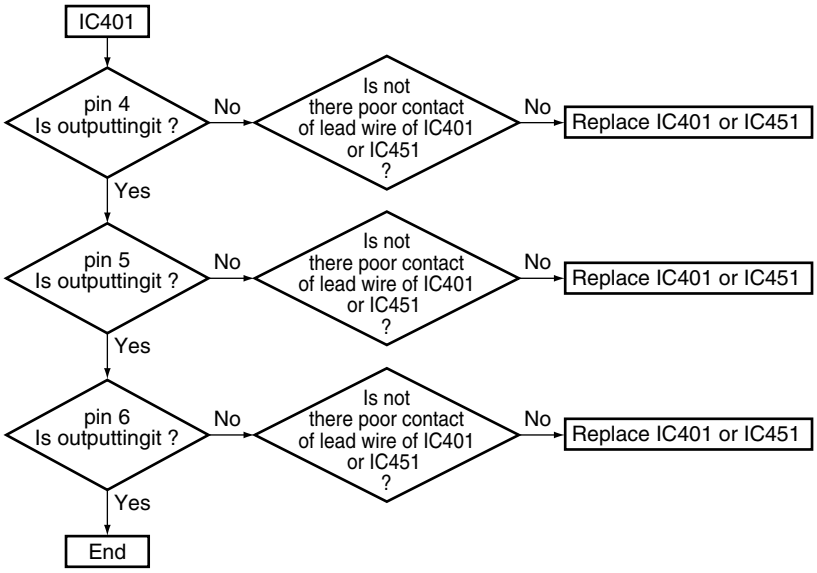
**Step 5**



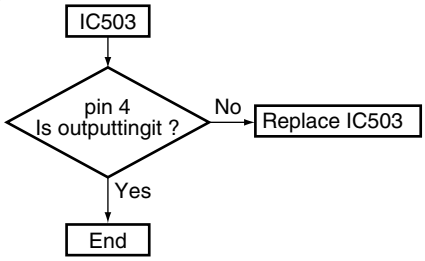

**Step 6**


IC301
pin 4 Is outputtingit ?
No
Is not there poor contact of lead wire of IC301 or IC302 or IC303 ?
No
Replace IC301 or IC302 or IC303
Yes
pin 5 Is outputtingit ?
No
Is not there poor contact of lead wire of IC301 or IC302 or IC303 ?
No
Replace IC301 or IC302 or IC303
Yes
pin 6 Is outputtingit ?
No
Is not there poor contact of lead wire of IC301 or IC302 or IC303 ?
No
Replace IC301 or IC302 or IC303
Yes
pin 7 Is outputtingit ?
No
Is not there poor contact of lead wire of IC301 or IC302 or IC303 ?
No
Replace IC301 or IC302 or IC303
Yes
End

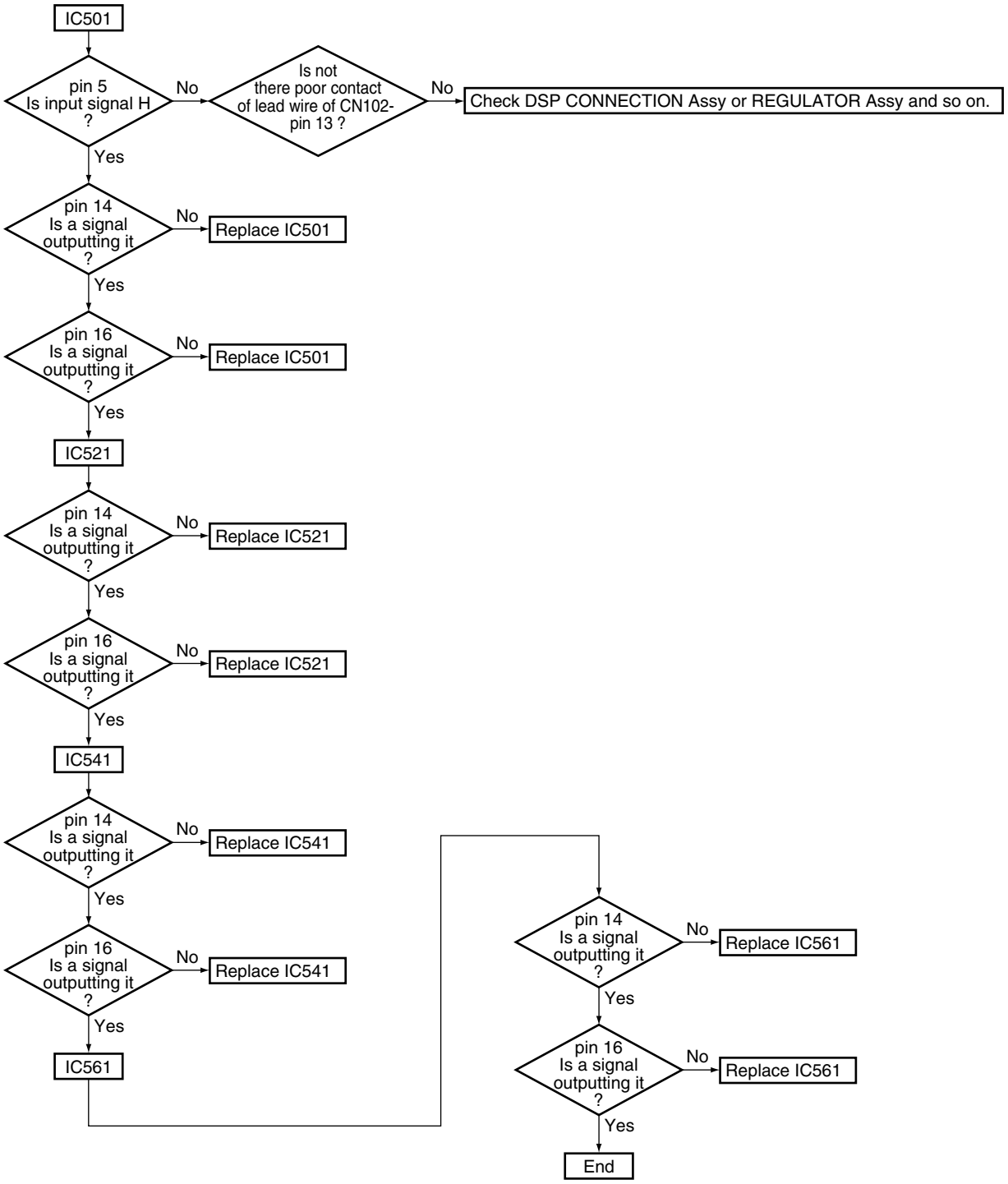
**Step 7**



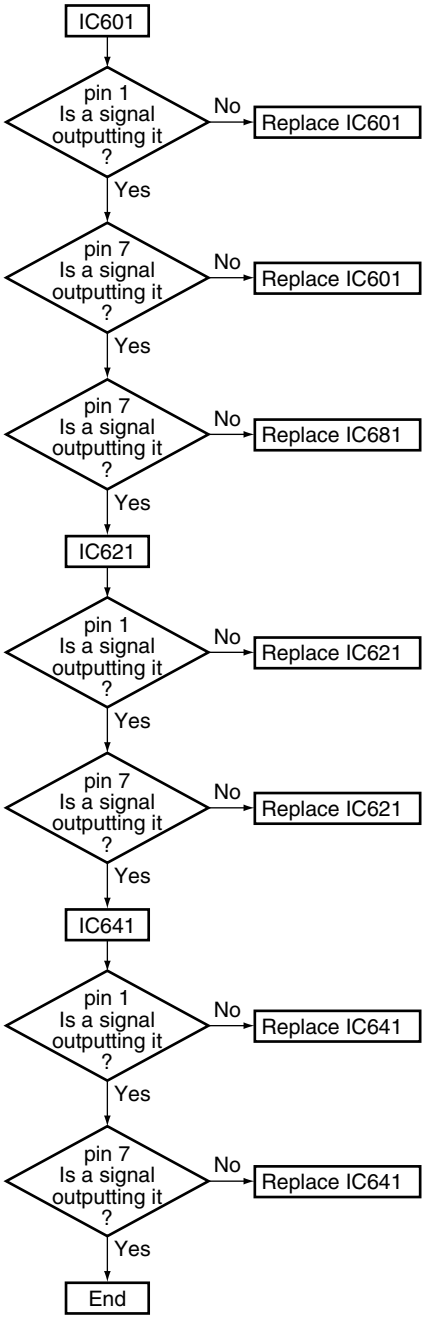
## Step 8


IC503
pin 4
Is outputtingit ?
No
Replace IC503
Yes
End

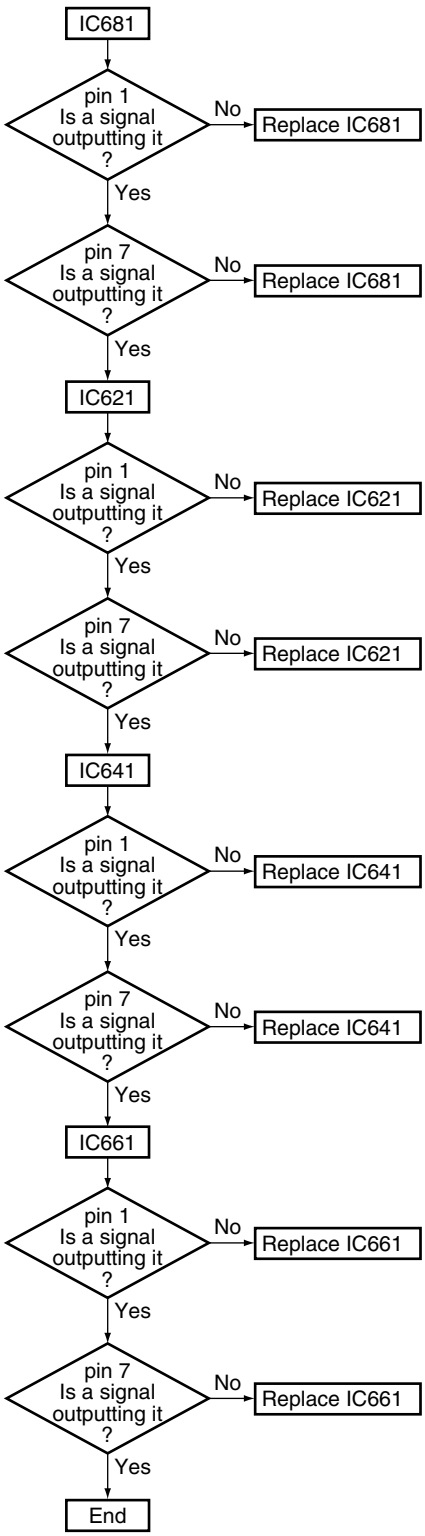
## Step 9


IC501
pin 5
Is input signal H
?
No
Is not
there poor contact
of lead wire of CN102-
pin 13 ?
No
Check DSP CONNECTION Assy or REGULATOR Assy and so on.
Yes
pin 14
Is a signal
outputting it
?
No
Replace IC501
Yes
pin 16
Is a signal
outputting it
?
No
Replace IC501
Yes
IC521
pin 14
Is a signal
outputting it
?
No
Replace IC521
Yes
pin 16
Is a signal
outputting it
?
No
Replace IC521
Yes
IC541
pin 14
Is a signal
outputting it
?
No
Replace IC541
Yes
pin 16
Is a signal
outputting it
?
No
Replace IC541
Yes
IC561
pin 14
Is a signal
outputting it
?
No
Replace IC561
Yes
pin 16
Is a signal
outputting it
?
No
Replace IC561
Yes
End

**Step 10**




**Step 11**



## 7.1.4 OUTLINE OF THE 1394 UNIT

### ●Operational Outline of the IEEE 1394 Unit

This unit supports the A&M protocol (Audio and Music Data transmission Protocol), which, among the IEEE 1394 audio and video protocols, is employed for audio equipment and electronic musical instruments, etc. As the unit does not support the MPEG2-TS protocol (for BS digital tuners and D-VHS) or the DV protocol (for digital video cameras and Pioneer's DVR) among IEEE 1394 audio and video protocols, it does not support video data transmission.

The main commands supported by this unit are: For sending, the PLAY command to a player, and for receiving, the commands for switching functions, increasing/decreasing the volume, muting on/off, and stream information (for inquiring about the receiving capabilities of the receiver).

Audio data (media) that can be received by the unit are as follows:
- DVD-A (2 channels, multiple channels)
- SACD (2 channels, multiple channels)
- IEC 60958 (DVD-V, DVD-RW, CD, VCD, MP3, DTS-CD, etc.)

The received data are demodulated separately for the above three signal formats in the IEEE 1394 receiving IC, output to another IC for jitterless transmission, then output to a third IC for DIR or to the DSP of the main unit.

As to SACD data, DSD streams are converted to multibit data at the SACD/PCM converting IC, and this enables SACD data processing at the DSP of the main unit. But DSD streams are inputted directly into the DAC bypassing the DSP at SACD DIRECT mode.
In jitterless transmission, audio data with jitter generated during IEEE 1394 transmission (actually, jitter contained in sync signals that cannot be reduced by the PLL for audio receiving) are cached in the buffer RAM in the receiver up to a certain amount, and then read out by a highly accurate crystal-oscillation clock in the receiver, which enables reduction of jitter. The receiver controls the amount of cached data in the buffer RAM such that a certain amount of data is always cached. If the amount of cached data falls below the specified level, a request is sent to increase the playback speed (transmission volume per unit hour) (+1%). If the amount of cached data exceeds the specified level, a request is sent to decrease the playback speed (-1%). Thus, data transmitted in jitterless transmission are delayed by about 0.7 sec behind the time indicated on the FL of the transmitting device, compared with data transmitted in normal transmission. Moreover, as mentioned above, because the sending device switches the system clock according to the request of the receiving device, sync of the video signal may be unlocked, and the audio signal would be delayed behind a video signal because of its being cached. So many sending devices do not adopt jitterless transmission for content having both audio and video signals.

Both the sending and receiving devices must support jitterless transmission to enable this type of transmission. Start of jitterless transmission is requested by the receiving device; however, depending on the status of the sending device (type of media, etc.), jitterless transmission may not be possible. Media for which jitterless transmission is supported and those for which it is not (only normal transmission is supported) are shown below:
- Jitterless transmission : DVD-A, SACD, CD, DTS-CD
- Normal transmission only : DVD-V, DVD-RW, VCD, MP3

Depending on the specifications of the sending device, it may not support jitterless transmission, even for those media for which it can be supported.
As to copyright protection, IEEE 1394 employs the DTCP (Digital Transmission Content Protection) system, which consists of the following:
1. Copy-control information
2. Authentication and key exchange
3. Encryption
4. System renewability

The procedures for copy protection are basically as follows: After authentication and key exchange for encryption/decryption, the sending device will send the data encrypted using the keys. The receiving device in turn will decipher the data using the exchanged keys.
- Media whose data can be encrypted: DVD-V, DVD-A, SACD, DVD-RW
- Media whose data cannot be encrypted: CD, DTS-CD, VCD, MP3

## ● IEEE 1394 Error Indications

| No. | Message | Error Code | Cause and Actions to be taken | Remarks |
|---|---|---|---|---|
| 1 | WRITING CONFIG | E7 | The Config ROM data are being written to flash memory. Do NOT turn off the power while this message is displayed. While this message is displayed, the Standby button on the main unit is disabled. | This message is displayed when a unit whose host board was replaced with a new one is turned on for the first time. |
| 2 | MODEL ID ERROR | CO | The MODEL ID stored in flash memory on the host board and that stored in the main unit do not match. Download the GUID again. | This error is generated when a host board for the wrong destination is mounted in the unit, and it will only be generated during servicing. The message will remain displayed until the error is corrected. |
| 3 | CONFIG ERROR | C1 | The Config ROM data are erroneous. Download the GUID again. | This message is displayed when the power is turned off while the Config ROM data are being written. As this is generated while the unit is operated online, this error will only be generated during servicing. The message will remain displayed until the error is corrected. |

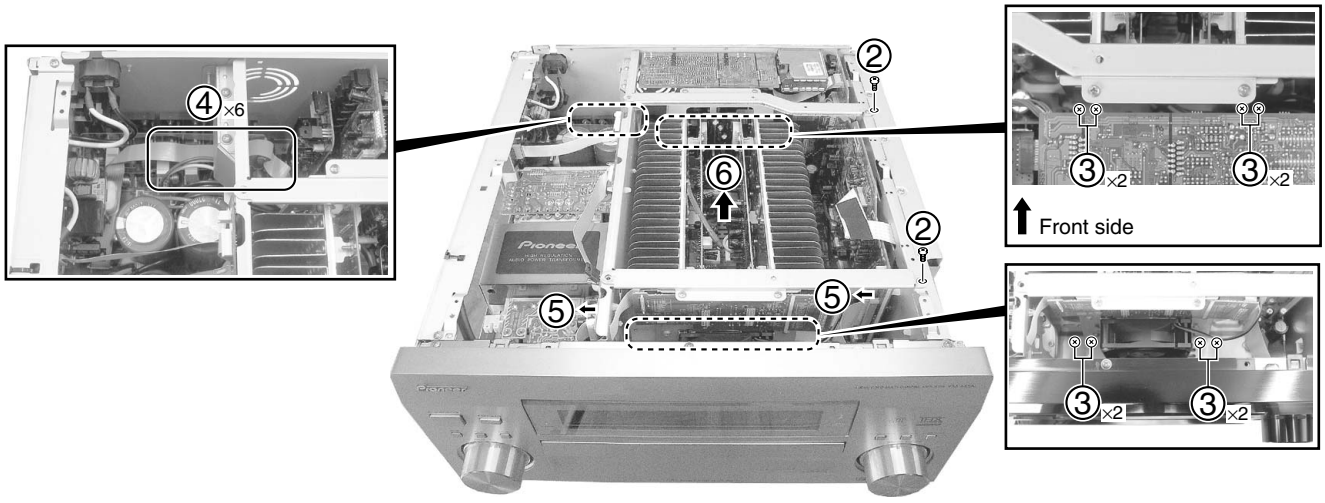
**Note:** If downloading of the GUID cannot be performed for corrective measures for messages 1 and 2, replace the host board with a new one.

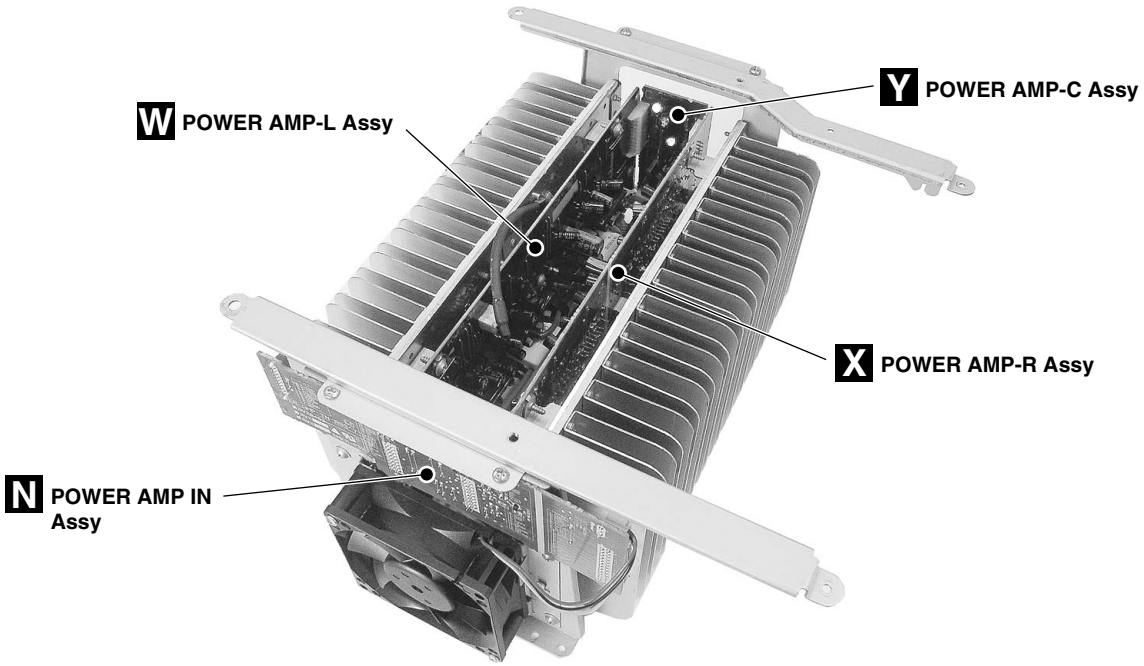
## 7.1.5 DISASSEMBLY

**Note:** Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

### 1 Bonnet Case 56S and Heatsink Section

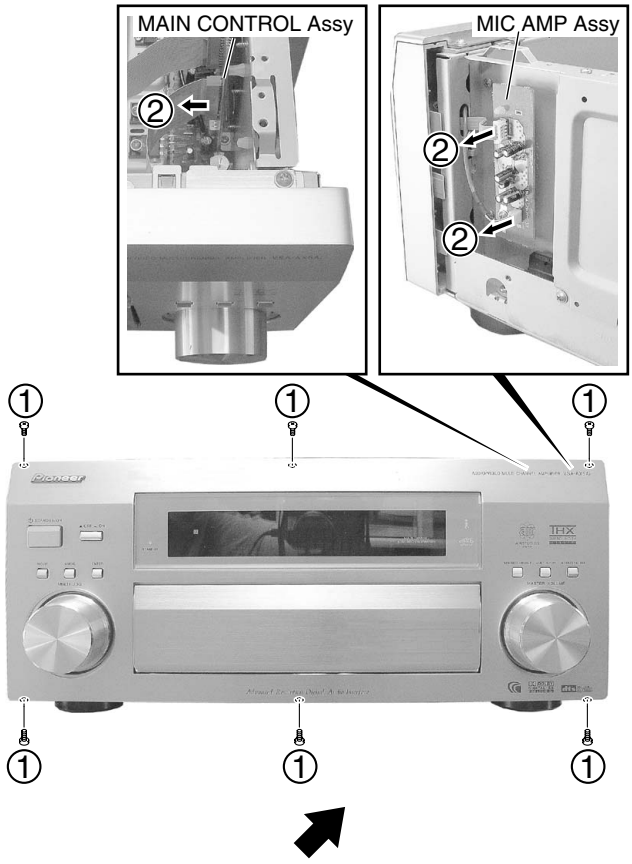
① Remove the bonnet case 56S by removing the 23 screws.
② Remove the two screws.
③ Remove the eight screws.
④ Disconnect the six connectors.
⑤ Disconnect the one flexible cable and the one connector.
⑥ Remove the heatsink section.



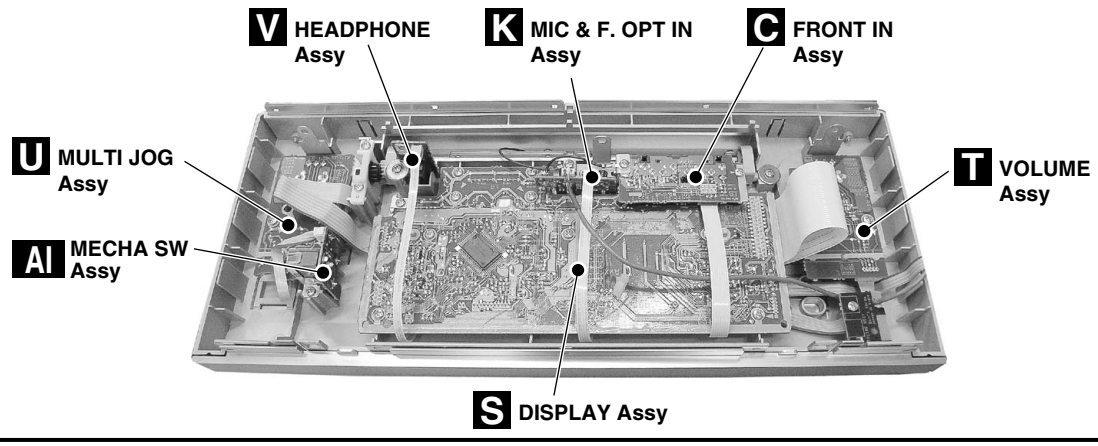



## 2 Front Panel Section

① Remove the six screws.
② Disconnect the one flexible cable and the two connectors.
③ Remove the four screws.
④ Unhook the two hooks.
⑤ Remove the front panel section.
⑥ Disconnect the one flexible cable.

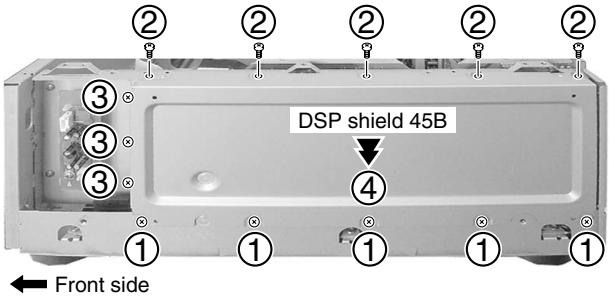


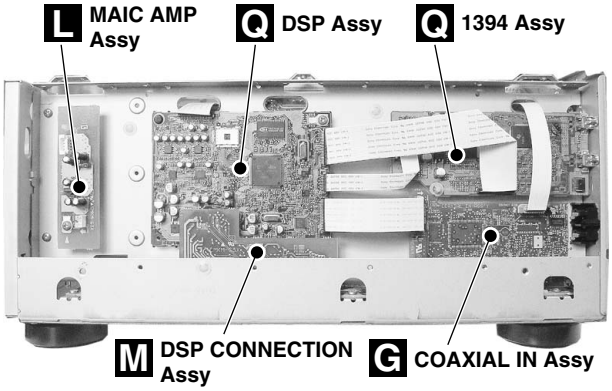

• Top view



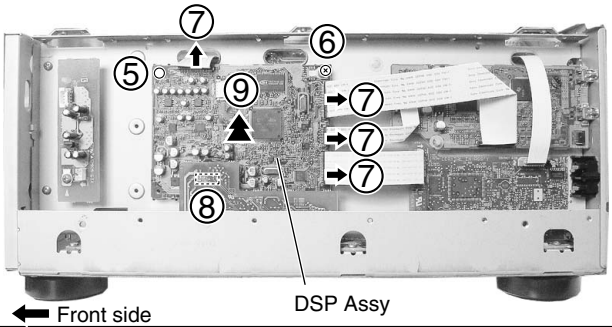
## 3 DSP Section

① Remove the five screws.
② Remove the five screws.
③ Remove the three screws.
④ Remove the DSP shield 45B.



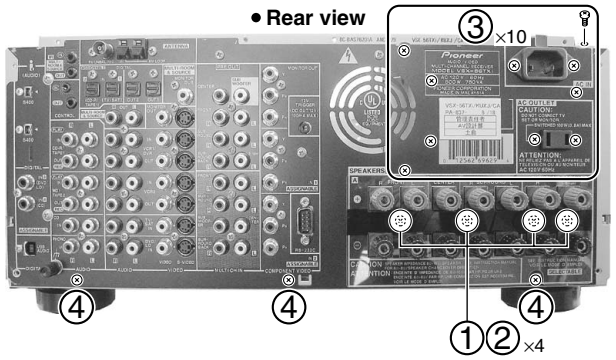




⑤ Remove the one nyron rivet.
⑥ Remove the one screw.
⑦ Disconnect the four flexible cables.
⑧ Disconnect the one connector.
⑨ Remove the DSP Assy.

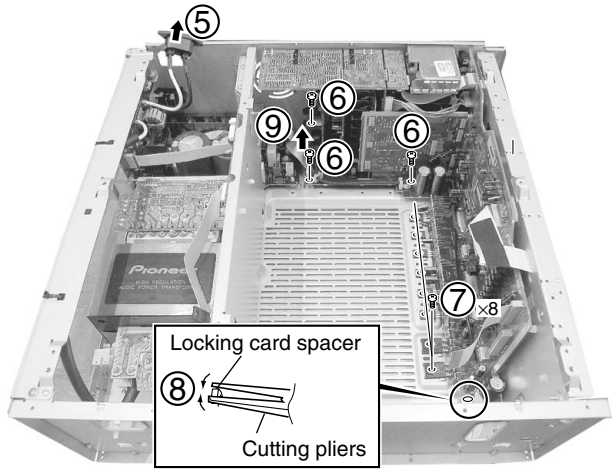



## 4 Rear Panel and Main Sections

① Remove the four cushion circle 16B.
② Remove the four screws.
③ Remove the ten screws.
④ Remove the three screws.



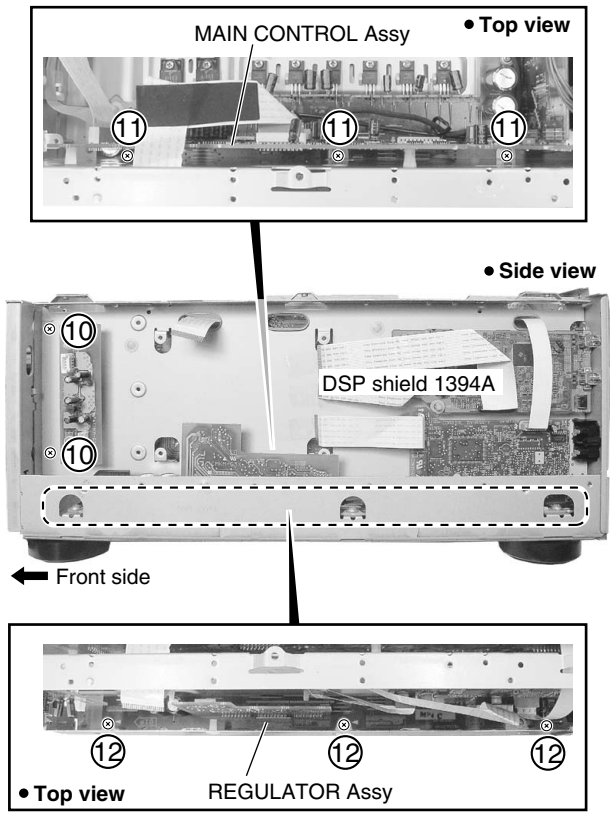

⑤ Remove the AC IN socket.
⑥ Remove the three screws.
⑦ Remove the eight screws.
⑧ Remove the locking card spacer.
⑨ Disconnect the one connector.



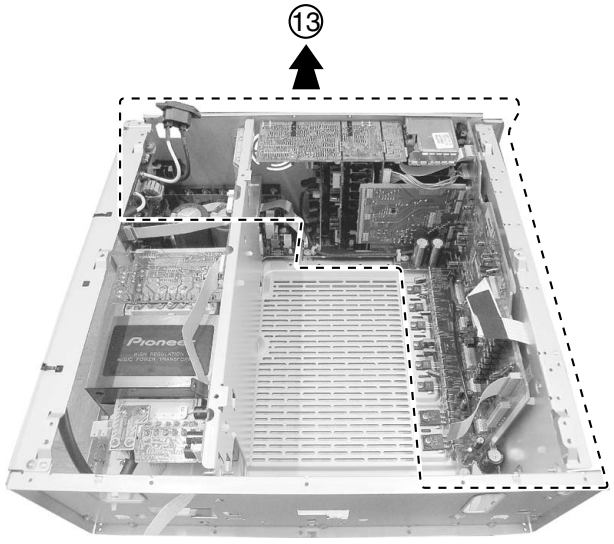
⑩ Remove the two screws.

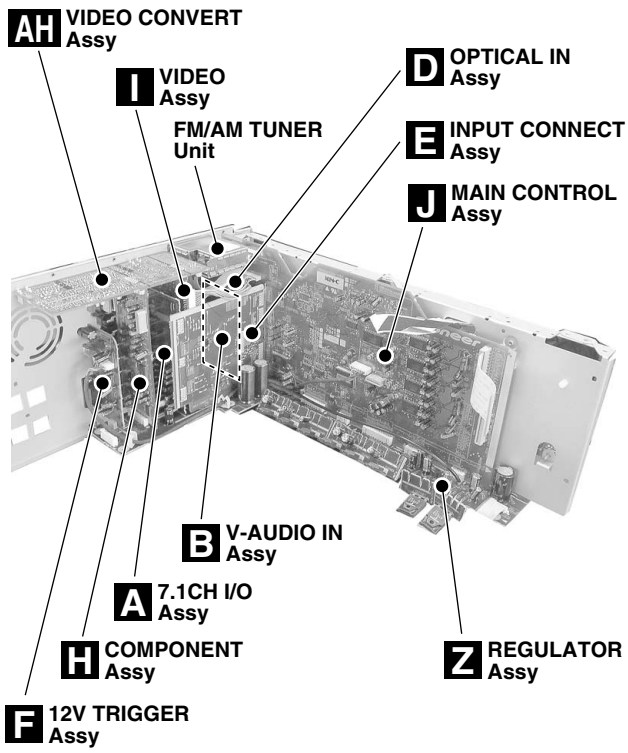
⑪ Remove the three screws.

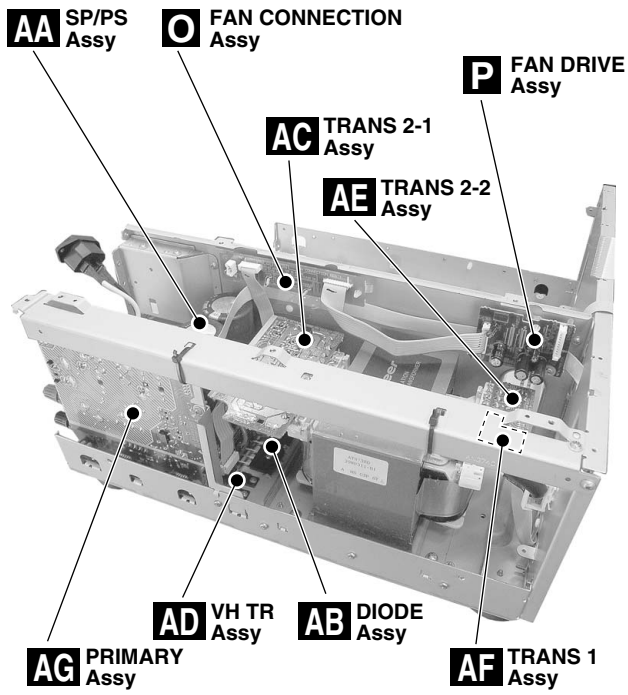
⑫ Remove the three screws.




⑬ Remove the rear panel section with the main section.



## How to Diagnose the Unit with the Heatsink Section Removed

With the following method, the Assys that cannot be diagnosed while the unit is powered because the Heatsink Section obstructs access to them can be diagnosed.

**Notes:**

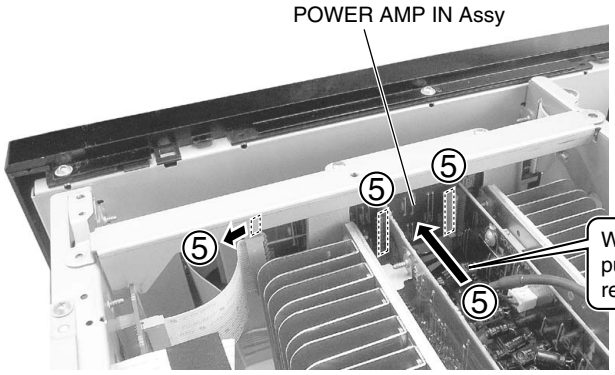
1. This method is merely an expedient way of diagnosing sections that are difficult to access, such as the MAIN CONTROL Assy and REGULATOR Assy. Diagnoses involving the Power Amplifier section, such as DC detection, are not possible with this method, nor are diagnoses regarding temperature detection.
2. After diagnosis is finished, discharge the electrolytic capacitor using a resistor, not by short-circuiting it.

### Procedures

① Remove the bonnet case 56B by removing the 23 screws.
② Remove the two screws that secure Bridge Frames 45F and 45R.
③ Disconnect the six connectors connected between the Heatsink Section and the SP/PS Assy.
④ Disconnect the eight screws that secure the Heatsink Section.

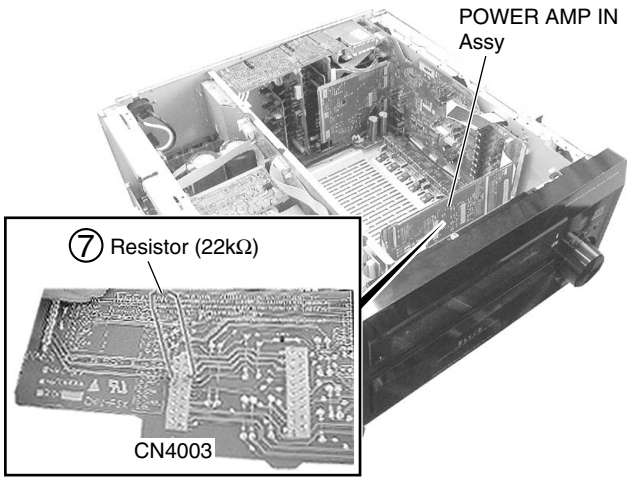
See Step 1.

⑤ Disconnect the three connectors of the POWER AMP IN Assy. In this case, you can easily remove the Assy once the flexible cable connecting the POWER AMP IN Assy and the MAIN CONTROL Assy has been disconnected.




When removing the POWER AMP IN Assy, pull out the Assy while pushing on the board at the center from the rear, for easier removal with less stress on the connector.

⑥ Remove the Heatsink Section, leaving the POWER AMP IN Assy intact.
⑦ Jump with a 22kΩ resistor between Pins 10 and 11 of CN4003 on the POWER AMP IN Assy.
⑧ Turn on the power. The power will then be on without the protection circuits activated.




**Diagnosis**

⚠ **After finishing diagnosis, perform the following before returning the Heatsink Section to its original position:**

① Remove the resistor used in Step ⑦.
② Discharge the electrolytic capacitors on the VH line shown below. If you do not, the resistors may be damaged by a surge of current.

**Electrolytic capacitors to be discharged:**
TRANS 2-1 Assy: C2207, C2208, C2211
FAN DRIVE Assy: C4055, C4056

③ Return the Heatsink Section to its original position.

# 7.2 PARTS

## 7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● **List of IC**

PD8112A, PEG040B8, PEG041B, BU4094BCF, PCM2902EG, TSB43CA42, SM5819AF, TA1270BF, TC90A49F

## ■ PD8112A (1394 ASSY: IC301)

**• Flow Control IC**

● **Pin Function**

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 1 | VDDOUT | – | Digital VDD (3.3V) |
| 2 | SPDIFOUT | O | IEC60958 output |
| 3 | SDATA3O | O | MBLA data output (5 ch, 6 ch) (at flow: I2S) |
| 4 | SDATA2O | O | MBLA data output (3 ch, 4 ch) (at flow: I2S) |
| 5 | SDATA1O | O | MBLA data output (1 ch, 2 ch) (at flow: I2S) |
| 6 | SDATA0O | O | MBLA ancillary data output (at flow: I2S) |
| 7 | LRCKOUT | O | MBLA LRCK output |
| 8 | BCKOUT | O | MBLA BCK output (64fs) |
| 9 | AMCLKOUT | O | Master clock output (When AMCLKEN output is LOW, active Hi-Z.) |
| 10 | AMCLKEN | O | When 60958 is selected or OUTPUTEN=L output, active LOW. For external clock control |
| 11 | SDERRO | O | Data error flag output |
| 12 | VSSOUT | – | Digital GND |
| 13 | VDDOUT | – | Digital VDD (3.3V) |
| 14 | SDMUTEO | O | Data mute flag output MUTE: H |
| 15 | SAPCMBCKIN | I | BCK input when converting SACD to MLPCM |
| 16 | SAPCMLRCKIN | I | LRCK input when converting SACD to MLPCM |
| 17 | SAPCMD3IN | I | DATA3 input when converting SACD to MLPCM |
| 18 | SAPCMD2IN | I | DATA2 input when converting SACD to MLPCM |
| 19 | SAPCMD1IN | I | DATA1 input when converting SACD to MLPCM |
| 20 | SACDMKO | O | SACD master clock output (2.8224MHz) |
| 21 | SACDDAO | O | SACD ancillary data output |
| 22 | SACDD0O | O | SACD data output (L) |
| 23 | SACDD1O | O | SACD data output (R) |
| 24 | SACDD2O | O | SACD data output (C) |
| 25 | SACDD3O | O | SACD data output (Lfe) |
| 26 | VSSCORE | – | Digital GND (for inside) |
| 27 | VDDCORE | – | Digital VDD (3.3V, for inside) |
| 28 | SACDD4O | O | SACD data output (Ls) |
| 29 | SACDD5O | O | SACD data output (Rs) |
| 30 | SACDFRO | O | SACD frame data output (75Hz) |
| 31 | TESTMODE0 | I | LSI test mode input Normally, "L" fixed |
| 32 | TESTMODE1 | I | LSI test mode input Normally, "L" fixed |
| 33 | PLLMODE | I | VCOCLK division ratio selection Normally, "L" |
| 34 | SAPCMMODE | I | 0: normal, 1: When the data type is SACD, output SAPCM*** input to MLPCM. |
| 35 | XVALMODE | I | 0: 64M•128M bit SDRAM, 1: 256M bit SDRAM |
| 36 | RJMSBF | I | MLPCM output format setting at flow 0: I2S, 1: Right aligned MSB first |
| 37 | SEL512 | I | Master clock selection at flow 0: 768fs, 1: 512fs |
| 38 | CONT48 | O | Output for controlling the oscillator (When FMODE="1" and SEL44K="1", active High) |
| 39 | CLK48K | I | Master clock input of fs48kHz (36.864MHz or 24.576MHz) |
| 40 | CLK48KI | I | Crystal resonator input of fs48kHz (24.576MHz) |
| 41 | CLK48KO | O | Crystal resonator output of fs48kHz (24.576MHz) |
| 42 | VSSOUT | – | Digital GND |
| 43 | VDDOUT | – | Digital VDD (3.3V) |
| 44 | CONT44 | O | Output for controlling the oscillator (When FMODE="1" and SEL44K="0", active High) |
| 45 | CLK44K | I | Master clock input of fs44.1kHz (33.8688MHz or 22.5792MHz) |
| 46 | CLK44KI | I | Crystal resonator input of fs44.1kHz (22.5792MHz) |
| 47 | CLK44KO | O | Crystal resonator output of fs44.1kHz (22.5792MHz) |
| 48 | SELOSC | I | L: CLK4XK input selection, H: crystal resonator I/O selection As for the crystal resonator, less than 30MHz are insured. |

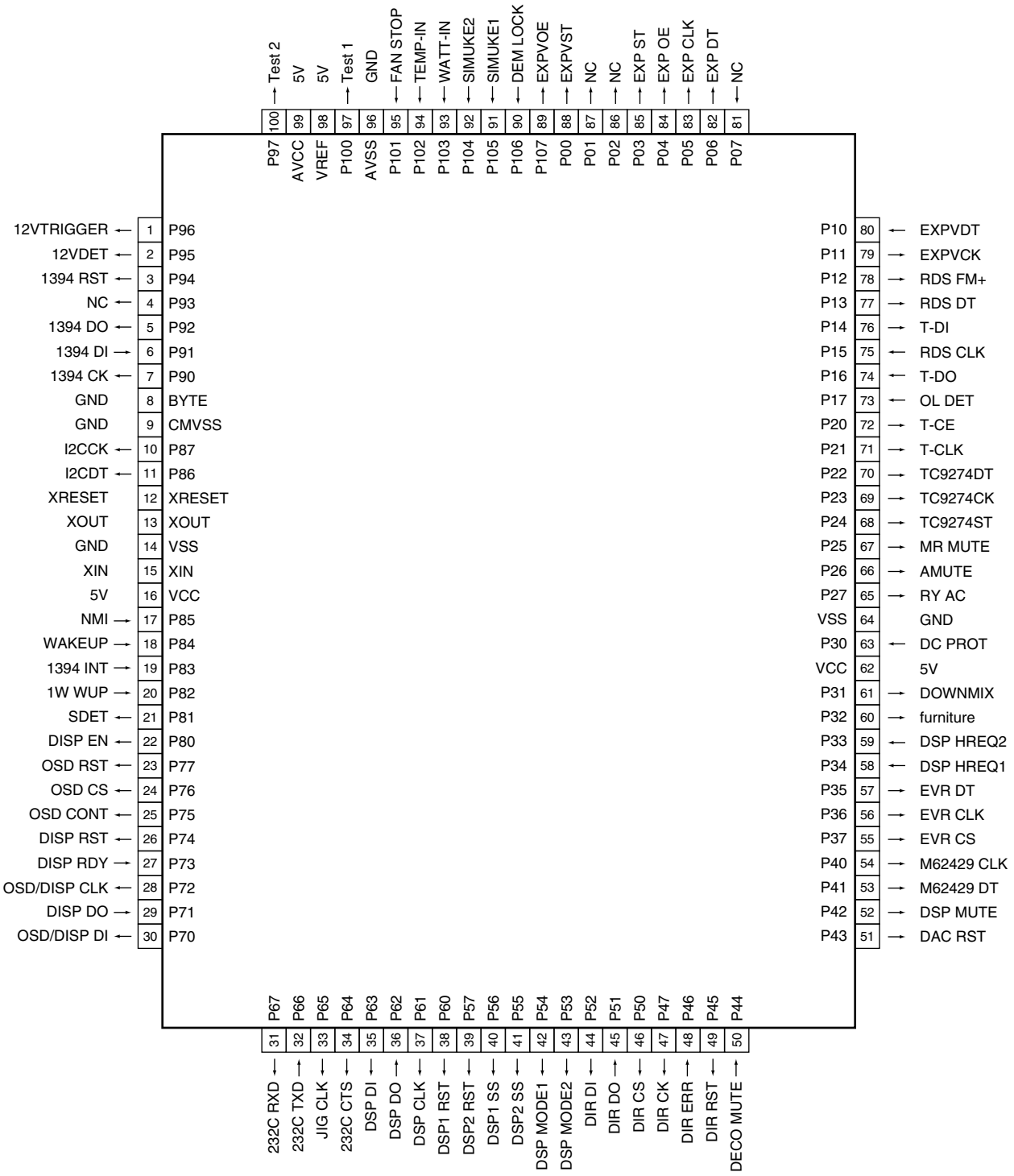
| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 49 | XRESET | I | Logic reset input Reset for L |
| 50 | OUTPUTEN | I | Pin for controlling the audio system output H: output, L: Hi-Z |
| 51 | FMODE | I | Flow mode control input at flow: H, at through: L |
| 52 | SELDTYPE0 | I | Data type input 0 00: IEC60958, 01: MBLA |
| 53 | SELDTYPE1 | I | Data type input 1 1X: SACD |
| 54 | SEL44K | I | Selecting signal of master clock input at flow L: CLK48K, H: CLK44K |
| 55 | FSSEL0 | I | fs setting input 0 00: 44.1/48kHz, 01: 88.2/96kHz |
| 56 | FSSEL1 | I | fs setting input 1 10: 176.4/192kHz, 11: 29.4/32kHz |
| 57 | VSSOUT | – | Digital GND |
| 58 | VDDOUT | – | Digital VDD (3.3V) |
| 59 | RXSTART | I | Trigger signal input of flow receiving start |
| 60 | SACDCHSEL | I | In a through mode, set to 1 in SACD 5 channel receiving. 0: 2ch•6 ch, 1: In 5ch flow receiving, a channel is distinguished automatically by ansillary data. |
| 61 | FMUTE | I | Forced mute control signal input Reflect to SDMUTEO. |
| 62 | FSTATE0 | O | Status output 0 of memory in the flow |
| 63 | FSTATE1 | O | Status output 1 of memory in the flow 00: Empty < 01: fast < 11: standard < 10: slow • full |
| 64 | FSTATE2 | O | Status output 2 of flow receive data When received data type to be different from the set data type,active High. |
| 65 | TDI | I | Boundary Scan TAP pin |
| 66 | TDO | O | Boundary Scan TAP pin |
| 67 | TMS | I | Boundary Scan TAP pin |
| 68 | TCK | I | Boundary Scan TAP pin |
| 69 | TRST | I | Boundary Scan TAP pin |
| 70 | SACDMKIN | I | SACD bit clock input |
| 71 | SACDFRIN | I | SACD frame signal input |
| 72 | SACDD0IN | I | SACD data input 0 (ch1) |
| 73 | VSSCORE | – | Digital GND (for inside) |
| 74 | VDDCORE | – | Digital VDD (3.3V, for inside) |
| 75 | SACDD1IN | I | SACD data input 1 (ch2) |
| 76 | SACDD2IN | I | SACD data input 2 (ch3) |
| 77 | SACDD3IN | I | SACD data input 3 (ch4) |
| 78 | SACDD4IN | I | SACD data input 4 (ch5) |
| 79 | SACDD5IN | I | SACD data input 5 (ch6) |
| 80 | SACDDAIN | I | SACD ansillary data input |
| 81 | AMCLKIN | I | Master clock input (VCO) at through mode |
| 82 | SPDIFIN | I | IEC60958 input Data valid input at flow |
| 83 | SDMUTEIN | I | Mute flag input at through mode |
| 84 | SDERRIN | I | Data error flag input |
| 85 | VCOCLK2O | O | VCO clock output 2 (for 512fs) |
| 86 | VCOCLK1O | O | VCO clock output 1 (for 768fs) |
| 87 | REFSYT | I | PLL reference input (at passive filter) |
| 88 | DIVVCO | I | PLL VCO dividing input (at passive filter) |
| 89 | VCOEN | I | Built-in VCO control input Low: stop, High: oscillation |
| 90 | VSSCORE | – | Digital GND (for inside) |
| 91 | VDDCORE | – | Digital VDD (3.3V, for inside) |
| 92 | VSSOUT | – | Connect to analog GND |
| 93 | VSSPASS | – | Analog GND |
| 94 | VDDPASS | – | Analog VDD (3.3V) |
| 95 | LPOUT | O | Phase comparator output (analog) |
| 96 | LPIN | I | VCO control voltage input (analog) |

| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 97 | VDDOUT | – | Connect to analog VDD (3.3V) |
| 98 | BCKIN | I | MBLA flow BCK input |
| 99 | LRCKIN | I | MBLA flow LRCK input |
| 100 | SDATA1IN | I | MBLA flow data input 1 |
| 101 | SDATA2IN | I | MBLA flow data input 2 |
| 102 | SDATA3IN | I | MBLA flow data input 3 |
| 103 | SDATA0IN | I | MBLA flow data input 0 |
| 104 | VSSOUT | – | Digital GND |
| 105 | VDDOUT | – | Digital VDD (3.3V) |
| 106 | SDA0 | O | Address output for external SDRAM |
| 107 | SDA1 | O | Address output for external SDRAM |
| 108 | SDA2 | O | Address output for external SDRAM |
| 109 | SDA3 | O | Address output for external SDRAM |
| 110 | SDA4 | O | Address output for external SDRAM |
| 111 | SDA5 | O | Address output for external SDRAM |
| 112 | SDA6 | O | Address output for external SDRAM |
| 113 | SDA7 | O | Address output for external SDRAM |
| 114 | SDA8 | O | Address output for external SDRAM |
| 115 | SDA9 | O | Address output for external SDRAM |
| 116 | SDA10 | O | Address output for external SDRAM |
| 117 | SDA11 | O | Address output for external SDRAM |
| 118 | SDA12 | O | Address output for external SDRAM |
| 119 | SDA13 | O | Address output for external SDRAM |
| 120 | SDD0 | I/O | Data input/output for external SDRAM |
| 121 | SDD1 | I/O | Data input/output for external SDRAM |
| 122 | SDD2 | I/O | Data input/output for external SDRAM |
| 123 | SDD3 | I/O | Data input/output for external SDRAM |
| 124 | SDD4 | I/O | Data input/output for external SDRAM |
| 125 | SDD5 | I/O | Data input/output for external SDRAM |
| 126 | SDD6 | I/O | Data input/output for external SDRAM |
| 127 | SDD7 | I/O | Data input/output for external SDRAM |
| 128 | VSSOUT | – | Digital GND |
| 129 | VDDOUT | – | Digital VDD (3.3V) |
| 130 | SDD8 | I/O | Data input/output for external SDRAM |
| 131 | SDD9 | I/O | Data input/output for external SDRAM |
| 132 | SDD10 | I/O | Data input/output for external SDRAM |
| 133 | SDD11 | I/O | Data input/output for external SDRAM |
| 134 | SDD12 | I/O | Data input/output for external SDRAM |
| 135 | SDD13 | I/O | Data input/output for external SDRAM |
| 136 | SDD14 | I/O | Data input/output for external SDRAM |
| 137 | SDD15 | I/O | Data input/output for external SDRAM |
| 138 | SDCKE | I/O | Data input/output for external SDRAM |
| 139 | SDCLK | O | Data input/output for external SDRAM |
| 140 | SDDQMU | O | Data input/output for external SDRAM |
| 141 | SDXRAS | O | XRAS output for external SDRAM |
| 142 | SDXCAS | O | XCAS output for external SDRAM |
| 143 | SDXWE | O | XWE output for external SDRAM |
| 144 | VSSOUT | – | Digital GND |

## ■ PEG040B8 (MAIN CONTROL ASSY: IC501)

### • Main Microcomputer

### ● Pin Assignment (Top view)



## ● Pin Function

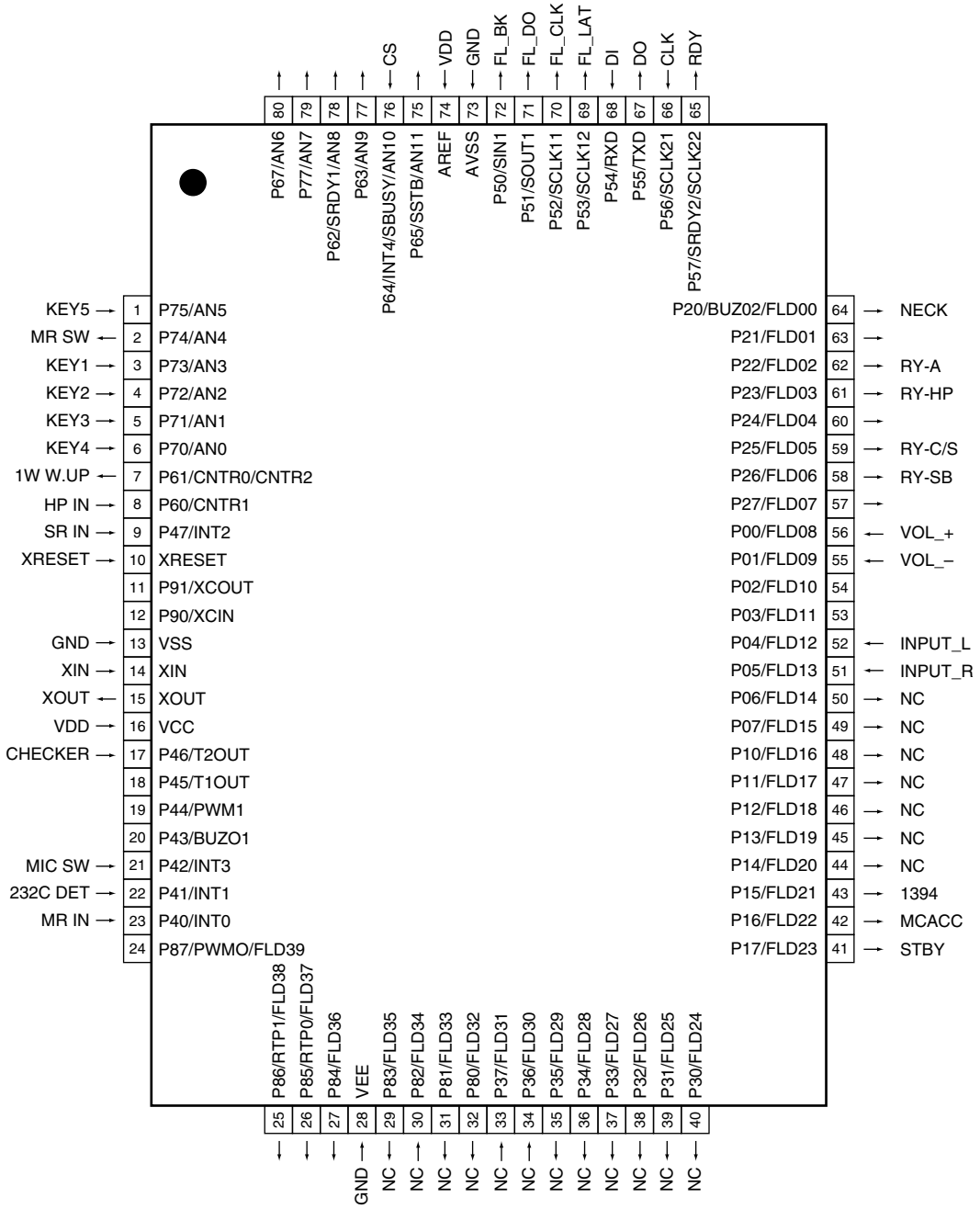
| No. | Pin Name | I/O | Pin Function | Active |
|---|---|---|---|---|
| 1 | 12VTRIGGER | O | 12V TRIGGER control port , "H" at ON | |
| 2 | 12VDET | I | 12V TRIGGER monitoring port | |
| 3 | 1394 RST | O | Reset for 1394 | |
| 4 | 1394 CS | O | Standby for 1394 (Not used) "L" fixed. | |
| 5 | 1394 DO | O | DO for 1394 | |
| 6 | 1394 DI | I | DI for 1394 | |
| 7 | 1394 CK | O | CK for 1394 | |
| 8 | GND | – | Ground | |
| 9 | CNVSS | – | 5.1kΩ pulldown | |
| 10 | I2CCK | O | Communication clock signal for video-chroma synchro. IC/YC sep. IC | |
| 11 | I2CDT | O | Communication data-out signal for video-chroma synchro. IC/YC sep. IC | |
| 12 | XRESET | – | Reset | |
| 13 | XOUT | – | Oscillator | |
| 14 | GND | – | Ground | |
| 15 | XIN | – | Oscillator | |
| 16 | 5V | – | 5V power supply | |
| 17 | NMI | I | Cannot use it as usual input port (100kΩ pullup) | |
| 18 | WAKEUP | I | AC pulse In (Wake up) | H |
| 19 | 1394 INT | I | INT for 1394 | |
| 20 | 1W WUP | I | Wakeup signal at standby (from the display microcomputer) (pulldown) | H |
| 21 | SDET | I | S signal detection | |
| 22 | DISP EN | O | Communication enabling signal to the display microcomputer | H |
| 23 | OSD RST | O | OSD-IC reset signal L: reset, H: release reset | |
| 24 | OSD CS | O | OSD-IC chip select signal | H |
| 25 | OSD CONT. | O | At data transfer to the OSD-IC: "H" | |
| 26 | DISP RST | O | Display microcomputer reset signal L: reset, H: release reset (pulldown) | |
| 27 | DISP RDY | I | Communication enabling signal from the display microcomputer | H |
| 28 | OSD/DISP CLK | O | Communication clock signal with the OSD-IC/display microcomputer | |
| 29 | DISP DO | I | Communication data in signal with the display microcomputer (N ch open drain) | |
| 30 | OSD/DISP DI | O | Communication data out signal with the OSD-IC/display microcomputer (N ch open drain: pullup) | |
| 31 | 232C RXD | O | For 232C rewriting (data output) | |
| 32 | 232C TXD | I | For 232C rewriting (data input) | |
| 33 | CLK | O | Not used | |
| 34 | 232C CTS | O | For 232C rewriting (communication permission) | |
| 35 | DSP DI | O | Communication data out signal with the DSP1 microcomputer | |
| 36 | DSP DO | I | Communication data in signal with the DSP2 microcomputer | |
| 37 | DSP CLK | O | Communication clock signal with the DSP microcomputer | |
| 38 | DSP1 RST | O | DSP1 microcomputer reset signal L: reset, H: release reset | |
| 39 | DSP2 RST | O | DSP2 microcomputer reset signal L: reset, H: release reset | |
| 40 | DSP1 SS | O | Slave select signal to DSP1 microcomputer | L |
| 41 | DSP2 SS | O | Slave select signal to DSP2 microcomputer | L |
| 42 | DSP MODE1 | O | Mode selection of DSP1 microcomputer (ROM/RAM) H: ROM mode, L: RAM (PPP) mode | H |
| 43 | DSP MODE2 | O | Mode selection of DSP2 microcomputer (ROM/RAM) H: ROM mode, L: RAM (PPP) mode | H |
| 44 | DIR DI | O | Communication data out signal with the DIR | |
| 45 | DIR DO | I | Communication data in signal with the DIR/DAC | |
| 46 | DIR CS | O | Communication chip select signal with the DIR/DAC | |
| 47 | DIR CK | O | Communication clock signal with the DIR/DAC | |
| 48 | DIR ERR | I | Lock/Unlock signal | |
| 49 | DIR RST | O | DIR reset signal | |
| 50 | DECO MUTE | I | Boot success detecting port of 1st DSP | |

| No. | Pin Name | I/O | Pin Function | Active |
|---|---|---|---|---|
| 51 | DAC RST | O | DAC/AD reset | |
| 52 | DSP MUTE | O | DSP Assy mute | H |
| 53 | M62429 DT | O | Data signal for multi room volume IC control | |
| 54 | M62429 CLK | O | Clock signal for multi room volume IC control | |
| 55 | EVR CS | O | Chip select signal for erectronic volume | |
| 56 | EVR CLK | O | Clock signal for erectronic volume | |
| 57 | EVR DT | O | Data signal for erectronic volume | |
| 58 | DSP HREQ1 | I | Error detection signal of DSP1 microcomputer | |
| 59 | DSP HREQ2 | I | Error detection signal of DSP2 microcomputer | |
| 60 | furniture | O | Furniture control signal | |
| 61 | DOWNMIX | O | DSD analog down mix control signal | |
| 62 | 5V | – | 5V power supply | |
| 63 | DC PROT | I | DC detection L: Detection | L |
| 64 | GND | – | Ground | |
| 65 | RC-AC | O | AC relay ON/OFF | H |
| 66 | AMUTE | O | System mute L: Mute ON | L |
| 67 | MRMUTE | O | Multi room mute L: Mute ON | L |
| 68 | tc9274f-st | O | Function SW control (Strobe) | |
| 69 | tc9274f-ck | O | Function SW control (Clock) | |
| 70 | tc9274f-dt | O | Function SW control (Data) | |
| 71 | TUNER CLK | O | Clock signal of tuner control | |
| 72 | TUNER CE | O | Chip select signal of tuner control | |
| 73 | OL DET | I | Amp. overload detection L: Detection | L |
| 74 | TUNER DO | I | Data input signal of tuner control (pullup) | |
| 75 | RDS CLK | O | RDS module clock in signal | |
| 76 | TUNER DI | O | Data output signal of tuner control | |
| 77 | RDS DT | O | RDS module data in signal | |
| 78 | RDS FM+ | O | RDS decoder power on/off | |
| 79 | EXPVCK | O | Control clock signal for VC extension IC | |
| 80 | EXPVDT | O | Control data signal for VC extension IC | |
| 81 | UARTSW | O | Not used, L" fixed | |
| 82 | EXP DT | O | Data signal of expansion IC control | |
| 83 | EXP CLK | O | Clock signal of expansion IC control | |
| 84 | EXP OE | O | Output enable signal of expansion IC control | |
| 85 | EXP ST | O | Chip clock signal of expansion IC control | |
| 86 | – | O | NC | |
| 87 | – | O | NC | |
| 88 | EXPVST | O | Control chip clock signal for VC extension IC | |
| 89 | EXPVOE | O | Control output enable signal for VC extension IC | |
| 90 | DEM LOCK | I | Not used | |
| 91 | SIMUKE1 | I | Destination read 1 | |
| 92 | SIMUKE2 | I | Destination read 2 | |
| 93 | WATT-IN | I | Wattage detection Level detection with A/D | A/D |
| 94 | TEMP-IN | I | Temperature detection Level detection with A/D | A/D |
| 95 | FAN STOP | I | Fan forced stop detection | H |
| 96 | AVSS | – | Connect to VSS | |
| 97 | TEST1 | O | Test terminal | |
| 98 | VREF | – | Connect to VCC | |
| 99 | AVCC | – | Connect to VCC | |
| 100 | TEST2 | O | Test terminal | |

## ■ PEG041B (DISPLAY ASSY: IC3000)

**• Display Microcomputer**

**● Pin Assignment (Top view)**



## ● Pin Function

| No. | Pin Name | I/O | Pin Function | No. | Pin Name | I/O | Pin Function |
|---|---|---|---|---|---|---|---|
| 1 | KEY5 | I | KEY AD input | 41 | STANDBY | O | Standby LED |
| 2 | MR SW | O | Multi room input Pioneer/others L: Pioneer | 42 | MCACC | O | MCACC LED |
| 3 | KEY1 | I | KEY AD input | 43 | 1394 | O | 1394 LED |
| 4 | KEY2 | | | 44 | NC | O | Non connection |
| 5 | KEY3 | | | 45 | NC | | |
| 6 | KEY4 | | | 46 | NC | | |
| 7 | 1W WUP | O | 1W correspondence main wakeup | 47 | NC | | |
| 8 | HP | I | Headphone detection (active: H) | 48 | NC | | |
| 9 | SR IN | I | Remote control input of main room | 49 | NC | | |
| 10 | RESET | – | Reset input from the main microcomputer | 50 | NC | | |
| 11 | NC | O | Non connection | 51 | INPUT_R | I | Input selector RIGHT |
| 12 | NC | | | 52 | INPUT_L | I | Input selector LEFT |
| 13 | Vss | – | Ground | 53 | NC | O | Non connection |
| 14 | XIN | – | Oscillator | 54 | NC | O | Non connection |
| 15 | XOUT | – | Oscillator | 55 | VOL_– | I | Volume – direction |
| 16 | Vcc | – | Power supply 5V | 56 | VOL_+ | I | Volume + direction |
| 17 | CHECKER | I | Checker mode detection (10kΩ pulldown) | 57 | NC | O | Non connection |
| 18 | NC | O | Non connection | 58 | RY-SB | O | Surround back/SP-B relay ON/OFF (active: H) |
| 19 | NC | | | 59 | RY-C/S | O | C/S relay ON/OFF (active: H) |
| 20 | NC | | | 60 | NC | O | Non connection |
| 21 | MIC SW | I | MIC detection | 61 | RY-HP | O | Headphone relay ON/OFF (active: H) |
| 22 | 232C DET | I | 232C signal input detection | 62 | RY-A | O | Speaker A relay ON/OFF (active: H) |
| 23 | MR IN | I | Remote control input of sub room (active: H) | 63 | NC | O | Non connection |
| 24 | NC | O | Non connection | 64 | NECK | O | 6/8Ω switch L: 6Ω, H: 8Ω, Initial: 8Ω |
| 25 | NC | O | Non connection | 65 | RDY | O | Communication ready with main UCOM |
| 26 | NC | | | 66 | CLK | O | Communication clock with main UCOM |
| 27 | NC | | | 67 | DO | O | Communication data out with main UCOM |
| 28 | VEE | – | Ground | 68 | DI | I | Communication data in with main UCOM |
| 29 | NC | O | Non connection | 69 | FL_LAT | O | FL DRV LAT |
| 30 | NC | | | 70 | FL_CLK | O | FL DRV CLK |
| 31 | NC | | | 71 | FL_DO | O | FL DRV DATA |
| 32 | NC | | | 72 | FL_BK | O | FL DRV BK |
| 33 | NC | | | 73 | AVSS | – | Ground |
| 34 | NC | | | 74 | VREF | – | 5V reference voltage |
| 35 | NC | | | 75 | NC | O | Non connection |
| 36 | NC | | | 76 | CS | I | Communication CS with main UCOM |
| 37 | NC | | | 77 | NC | O | Non connection |
| 38 | NC | | | 78 | NC | | |
| 39 | NC | | | 79 | NC | | |
| 40 | NC | | | 80 | NC | | |

## ■ BU4094BCF (MAIN CONTROL ASSY: IC502)

**• Expansion IC**

**● Pin Function**

| No. | Pin Name | Pin Function | Active |
|---|---|---|---|
| 1 | DEM_STP | Demodulator oscillation OFF/ON | H |
| 2 | DEM_RST | Demodulator reset L: RESET | L |
| 3 | MRH | TC9215C12(Pin 5) control | H |
| 4 | NC | Not used | |
| 5 | NJM2596_SW5 | NJM2596 video control of main system | H |
| 6 | NJM2596_SW4 | | H |
| 7 | NJM2596_SW3 | | H |
| 8 | NJM2596_SW2 | | |

## ■ BU4094BCF (MAIN CONTROL ASSY: IC503)

**• Expansion IC**

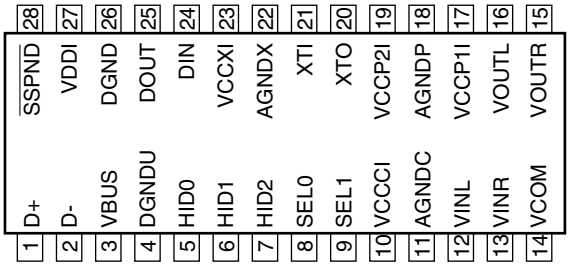
**● Pin Function**

| No. | Pin Name | Pin Function | Active |
|---|---|---|---|
| 1 | OSD ON | ON at OSD on | H |
| 2 | TC9215_C34 | Switch the DSP/DIRECT/MULTI CH IN of surround signal H: Multi ch input path | |
| 3 | PHONO GAIN | "H" at PHONO equalizer ON | H |
| 4 | DSDM | DSD DIRECT control | H |
| 5 | MUTE | "H" at Power ON processing and muting | H |
| 6 | FUNC | COMPONENT D4 Input selection (2 Input to 1 Output) | |
| 7 | FAN DRIVE | ON when rotates the FAN | H |
| 8 | LOFAN | Not used, "H" fixed | |

## ■ PCM2902EG (COAXIAL IN ASSY: IC1681)

**• USB Codec IC**

### ● Pin Assignment (Top view)

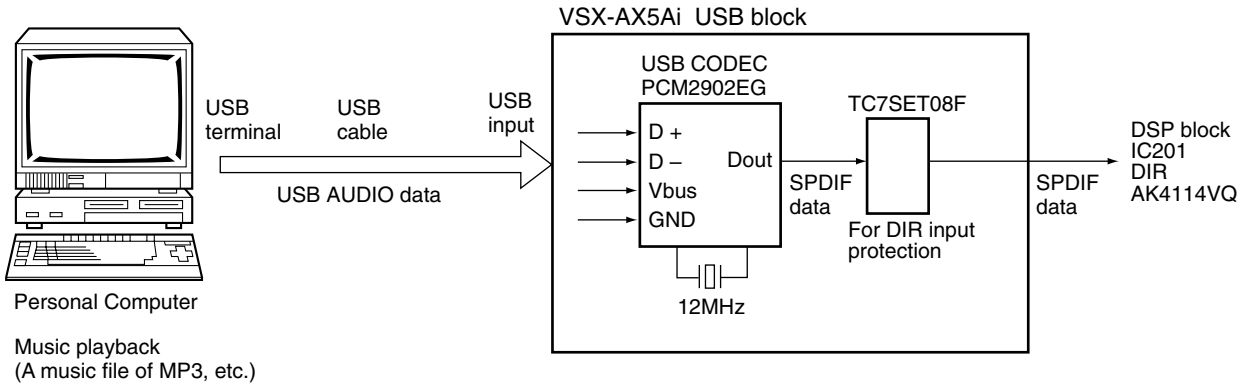



### ● Pin Function

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 1 | D+ | I/O | USB differential input/output plus(1) |
| 2 | D– | I/O | USB differential input/output minus(1) |
| 3 | VBUS | I | Connect to USB power (VBUS) |
| 4 | DGNDU | – | Digital ground for USB transceiver |
| 5 | HID0 | I | HID key state input (mute), active high(3) |
| 6 | HID1 | I | HID key state input (volume up), active high(3) |
| 7 | HID2 | I | HID key state input (volume down), active high(3) |
| 8 | SEL0 | I | Must be set to high(6) |
| 9 | SEL1 | I | Must be set to high(6) |
| 10 | VCCCI | – | Internal analog power supply for codec(4) |
| 11 | AGNDC | – | Analog ground for codec |
| 12 | VINL | I | ADC analog input for L-channel |
| 13 | VINR | I | ADC analog input for R-channel |
| 14 | VCOM | – | Common for ADC/DAC (VCCCI/2) (4) |
| 15 | VOUTR | O | DAC Analog output for R-channel |
| 16 | VOUTL | O | DAC analog output for L-channel |
| 17 | VCCP1I | – | Internal analog power supply for PLL(4) |
| 18 | AGNDP | – | Analog ground for PLL |
| 19 | VCCP2I | – | Internal analog power supply for PLL(4) |
| 20 | XTO | O | Crystal oscillator output |
| 21 | XTI | I | Crystal oscillator input(2) |
| 22 | AGNDX | – | Analog ground for oscillator |
| 23 | VCCXI | – | Internal analog power supply for oscillator(4) |
| 24 | DIN | I | S/PDIF input(5) |
| 25 | DOUT | O | S/PDIF output |
| 26 | DGND | – | Digital ground |
| 27 | VDDI | – | Internal digital power supply(4) |
| 28 | $\overline{\text{SSPND}}$ | O | Suspend flag, active low (Low: suspend, High: operational) |

(1) LV-TTL level
(2) 3.3-V CMOS level input
(3) 3.3-V CMOS level input with internal pulldown. This pin informs the PC of serviceable control signals such as mute, volume up, or volume down, which has no connection with the internal DAC or ADC directly. See the volume control and mute control section.
(4) Connect a decouple capacitor to GND
(5) 3.3-V CMOS level input with internal pulldown, 5 V tolerant
(6) TTL Schmitt trigger, 5 V tolerant

## ● Flow of USB Input Data




### About PCM2902EG

- With codec of USB BUS POWERED, power is supplied from Vbus of USB, and work. (work with a power supply of VSX-AX5Ai irrelatively.)
- Be USB codec, but analog I/O and digital (SPDIF) input are not using in VSX-AX5Ai.
- When only connects to PC and receiver (VSX-AX5Ai) is turned on, the output of TC7SET08F outputs.

## ● Help of Non-failure Decision

### Symptom when a sound is not output (Symptom is different by each OS)

- Confirm a driver whether PC is recognizing it. (With a device manager).
- Is a switch of sound sourse performed properly? (Control Panel, Sound or Multimedia)
- Is volume control of PC adjusted?
- How is other PC?
- In the state that does not change PC setting, is sound output in other VSX-AX5Ai?
- When uses CD-ROM and playback a music CD, and a sound is not output, is digital playback of CD-ROM checked?

### When contain noise

- There is a bug in early USB AUDIO driver of WINDOWS XP, and contain noise once for several minutes. (Correspond with WINDOWS UPDATE.)
- An affinity problem with chip set
- Adaptation problem with chip set (refer to next item)
- Performance issue of PC. (Release resident software as measures.)
- Noise when using the other software during music playback. (Do not guarantee or do not use the other software)
- Do contain the same noise even if changes the PC?

### Reference

Confirmation item of the USB part with Function checker.
Supply a power supply (+5V: pin 3, GND: pin 4) of IC1681 (PCM2902EG), and connect D+ (pin1) to GND.
Confirm that X1681 (ASS7047) starts oscillating.

Support OS

| | |
|---|---|
| Windows | 98 / 98SE / ME |
| Windows | 2000 Professional |
| Windows | XP Home / Professional |

## ● Adaptation Problem with Chip Set

### PCM2902EG caution of operation

Operating environment and findings of PCM2902EG

Evaluation PC: Libretto PAL2060 TNML made by Toshiba

(1) CPU: Crusoe 600MHz made by Transmeta
Use chip set: Transmeta N/B (North Bridge)
M1533 (South Bridge) made by ALi
OS: Windows ME

(2) CPU: Cerelon 566MHz made by Intel
Use chip set: Aladdin Pro 5 (North Bridge) and M1533 (South Bridge) made by ALi
OS: Windows ME

(3) CPU: K6-2 400MHz made by AMD
Use chip set: Aladdin 5 (North Bridge) and M1543 (South Bridge) made by ALi
OS: Windows ME

When contain noise by a problem of the chip set side, there is a problem in the PC side because even other USB audio equipment contains noise.

Therefore, do not recommend use in the condition and environment as mentioned above.

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

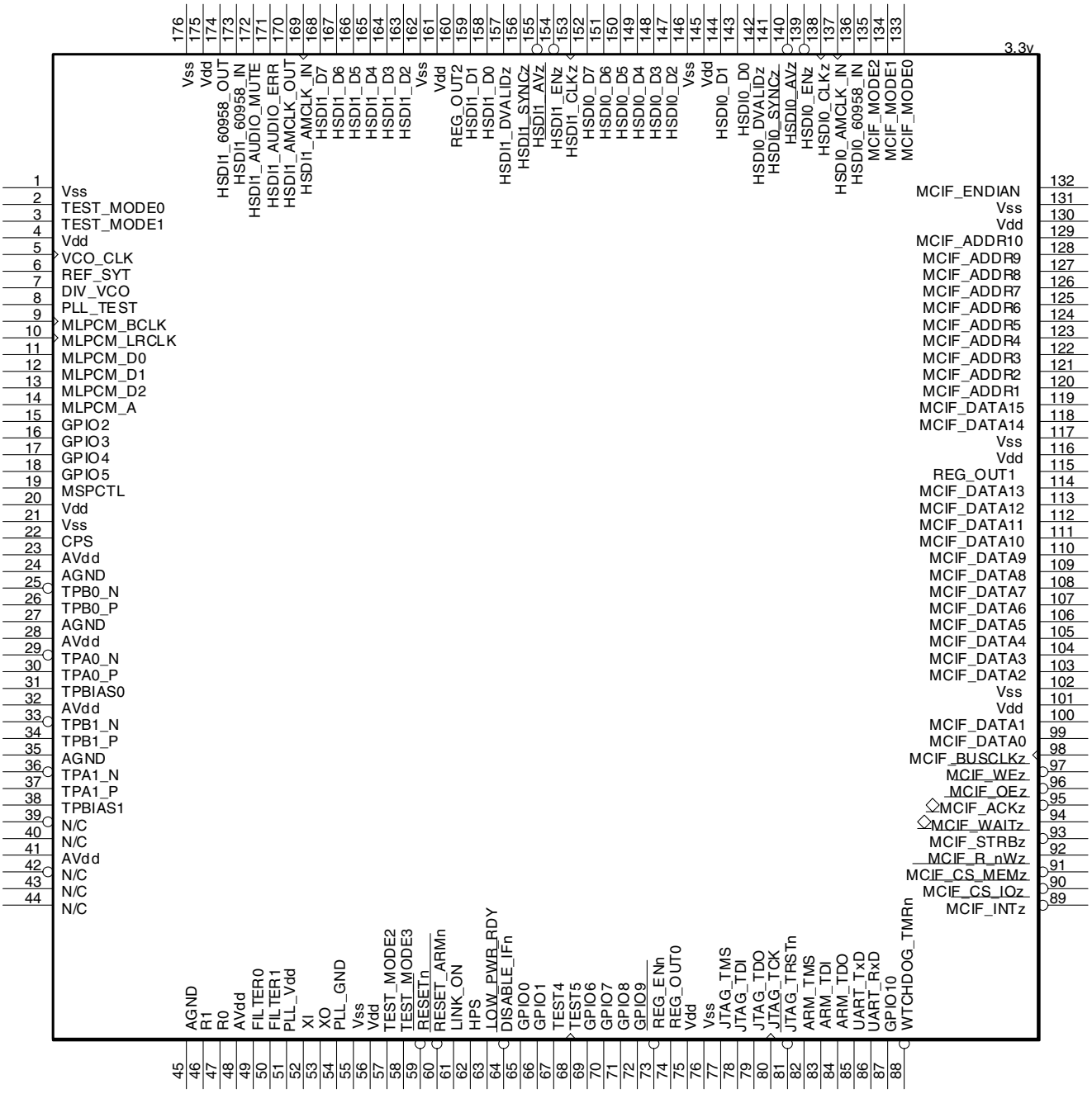
**• List of IC**

TSB43CA42ZGW, SM5819AF, TA1270BF

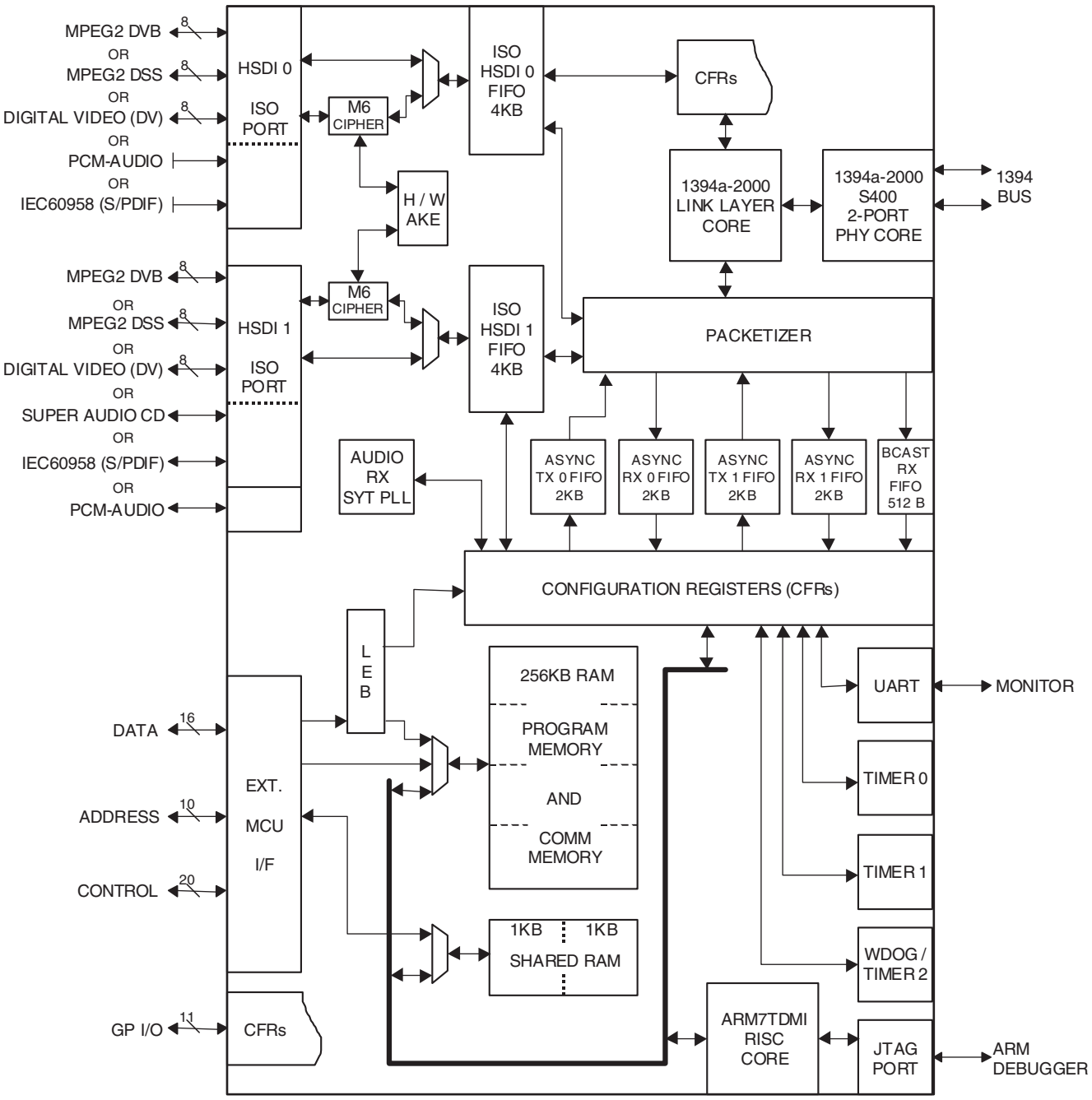
## ■ TSB43CA42ZGW (1394 ASSY : IC201)

• iceLynx-Micro

**● Pin Arrangement (Top view)**



## ● Block Diagram



## ● Pin Function

### Miscellaneous Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 64 | DISABLE_IFn | I | Interface disable. When asserted, the interfaces are put into a high-Z state. Interfaces include: ex-CPU, HSDI, GPIO, and WTCH_DG_TMRn. |
| 62 | HPS | I | Host power status. This indicates the power status of the external system to iceLynx-Micro. A rising edge indicates the system CPU has been turned ON. (The internal ARM must wake up.) A falling edge indicates the system CPU has been turned OFF. (The internal ARM decides if power down is necessary.) |
| 63 | LOW_PWR_RDY | O | Output to system to indicate iceLynx-Micro is ready to go into a low power state. The ARM and WTCH_DG_TMRn control this pin. |
| 88 | WTCH_DG_TMRn | O | Watch dog timer (for the ARM). iceLynx-Micro hardware asserts this pin whenever ARM software has not updated the Timer2 register within the allowed time period. |
| 60 | RESET_ARMn | I | ARM reset. This signal resets the internal ARM processor. |
| 59 | RESETn | I | Device reset. This signal resets all logic.This includes the PHY,link core, memory, the ARM, and random logic. |

### Power and Ground Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 1,21,55,76, 102,117,131, 146,162,176 | VSS | – | Digital ground |
| 24,27,35,45 | AGND | – | Analog ground |
| 54 | PLL_GND | – | PLL ground |
| 4,20,56,75, 101,116,130, 145,161,175 | VDD | – | Digital power supply. Must be set to 3.3-V nominal. |
| 23,28,32,41,48 | AVDD | – | Analog power supply. Must be set to 3.3-V nominal. |
| 51 | PLL_VDD | – | PLL power supply. Must be set to 3.3-V nominal. |

### Regulator Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 73 | REG_ENn | I | Internal regulator enable. The iceLynx-Micro core voltage is 1.8 V. Internal regulators are used to regulate the 3.3-V VDD inputs to 1.8 V. This pin enables the regulators. |
| 74 | REG_OUT0 | O | 1.8-V regulator output. This pin must be connected to ground using a 0.1-µF capacitor. |
| 115 | REG_OUT1 | O | 1.8-V regulator output. This pin must be connected to ground using a 0.1-µF capacitor. |
| 160 | REG_OUT2 | O | 1.8-V regulator output. This pin must be connected to ground using a 0.1-µF capacitor. |

### External CPU Interface Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 95 | MCIF_ACKz | I/O | MCIF acknowledge pin. Default active low. iceLynx-Micro asserts this signal if it has completed the MCIF request. This signal is driven when chip select (CS) is asserted. This signal is used for the following modes:<br>• 68000 + wait I/O access<br>• I/O Type-3 MPC850 |
| 120 | MCIF_ADDR1 | I | MCIF address 1 pin. This data pin is the least significant bit of the MCIF address bus. MCIF_ADDR0 is internally grounded. Only 16-bit addressing is allowed. MCIF_ADDR1 must be connected to the Address1 signal of the system CPU. |

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 121 | MCIF_ADDR2 | I | MCIF address 2 pin |
| 122 | MCIF_ADDR3 | I | MCIF address 3 pin |
| 123 | MCIF_ADDR4 | I | MCIF address 4 pin |
| 124 | MCIF_ADDR5 | I | MCIF address 5 pin |
| 125 | MCIF_ADDR6 | I | MCIF address 6 pin |
| 126 | MCIF_ADDR7 | I | MCIF address 7 pin |
| 127 | MCIF_ADDR8 | I | MCIF address 8 pin |
| 128 | MCIF_ADDR9 | I | MCIF address 9 pin |
| 129 | MCIF_ADDR10 | I | MCIF address 10 pin. This data pin is the most significant bit of the MCIF address bus. |
| 98 | MCIF_BUSCLKz | I | MCIF bus clock. This pin is only used for the MCIF synchronous mode. I/O Type-3 MPC850 and the memory access. This signal must be pulled high if not used. |
| 90 | MCIF_CS_IOz | I | MCIF chip select for all I/O MCIF modes. |
| 91 | MCIF_CS_MEMz | I | MCIF chip select for the memory MCIF mode. |
| 99 | MCIF_DATA0 | I/O | MCIF data 0 pin. This data pin is the least significant bit of the MCIF data bus. |
| 100 | MCIF_DATA1 | I/O | MCIF data 1 pin. |
| 103 | MCIF_DATA2 | I/O | MCIF data 2 pin. |
| 104 | MCIF_DATA3 | I/O | MCIF data 3 pin. |
| 105 | MCIF_DATA4 | I/O | MCIF data 4 pin. |
| 106 | MCIF_DATA5 | I/O | MCIF data 5 pin. |
| 107 | MCIF_DATA6 | I/O | MCIF data 6 pin. |
| 108 | MCIF_DATA7 | I/O | MCIF data 7 pin. |
| 109 | MCIF_DATA8 | I/O | MCIF data 8 pin. |
| 110 | MCIF_DATA9 | I/O | MCIF data 9 pin. |
| 111 | MCIF_DATA10 | I/O | MCIF data 10 pin. |
| 112 | MCIF_DATA11 | I/O | MCIF data 11 pin. |
| 113 | MCIF_DATA12 | I/O | MCIF data 12 pin. |
| 114 | MCIF_DATA13 | I/O | MCIF data 13 pin. |
| 118 | MCIF_DATA14 | I/O | MCIF data 14 pin. |
| 119 | MCIF_DATA15 | I/O | MCIF data 15 pin. This data pin is the most significant bit of the MCIF data bus. |
| 132 | MCIF_ENDIAN | I | MCIF endian pin. This sets the endianness for accesses between the external CPU and the internal iceLynx-Micro memory. This pin sets endianness for all MCIF modes. When set to 0, data is read/written to the ex-CPU exactly as it is stored in iceLynx-Micro memory. (Big endian)<br>When set to 1, data is swapped on half-word and byte boundaries before it is read/written to the ex-CPU. (Little endian) |
| 89 | MCIF_INTz | O | MCIF Interrupt. This signal is push-pull (always asserted). It does not require a pull-up resistor. |
| 133 | MCIF_MODE0 | I | MCIF mode 0. Used to select MCIF mode. |
| 134 | MCIF_MODE1 | I | MCIF mode 1. Used to select MCIF mode. |
| 135 | MCIF_MODE2 | I | MCIF mode 2. Used to select MCIF mode. |
| 96 | MCIF_OEz | I | MCIF output enable. Default active low. This input pin indicates if the system CPU wants to perform a MCIF read access. This signal is used for the following modes:<br>• SH-3 I/O access • M16C/62 I/O access • Memory access<br>This signal must be pulled high if not used. |
| 92 | MCIF_R_nWz | I | MCIF read/write pin. Default value for a read is 1. Default value for a write is 0. |
| 93 | MCIF_STRBz | I | MCIF strobe pin. Default active low. This pin is used (along with MCIF_CS_IOz) to validate the MCIF access. This signal is used for the following modes:<br>• 68000 + wait I/O access • MPC850 I/O access<br>When not used, this pin must be pulled high. |
| 94 | MCIF_WAITz | O | MCIF wait pin. Default active high. iceLynx-Micro asserts this signal if it is not ready to service an MCIF request. When not asserted, this signal is in a high-Z state. This signal is used for the following modes:<br>• 68000 + wait I/O access • SH-3 I/O access • M16C/62 I/O access |
| 97 | MCIF_WEz | I | MCIF Write Enable. Default active low. This input pin indicates if the system CPU wants to perform a MCIF write access. This signal is used for the following modes:<br>• SH-3 I/O access • M16C/62 I/O access • Memory access<br>This signal must be pulled high if not used. |

### Universal Asynchronous Receiver Transmitter Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 86 | UART_RxD | I | UART receive port. Data from the system is input to the UART buffer using this pin. |
| 85 | UART_TxD | O | UART transmit port. Data from the UART buffer is output to the system using this pin. |

### Joint Test Action Group (JTAG) and ARM Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 80 | JTAG_TCK | I | JTAG clock pin. Both the boundary scan and ARM JTAG uses this input for the JTAG clock. |
| 78 | JTAG_TDI | I | JTAG test data input pin |
| 79 | JTAG_TDO | O | JTAG test data output pin |
| 77 | JTAG_TMS | I | JTAG test mode selector pin. |
| 81 | JTAG_TRSTn | I | JTAG reset pin. Both the boundary scan and ARM JTAG uses this input for the JTAG clock.<br>**Note 1**: TSB43Cx43A/TSB43CA42 must have JTAG_TRSTn=0 for correct ARM interrupt operation.<br>**Note 2**: JTAG_TRST must be asserted once after power-up for correct operation of the iceLynx-Micro. |
| 83 | ARM_TDI | I | ARM JTAG test data input pin |
| 84 | ARM_TDO | O | ARM JTAG test data output pin |
| 82 | ARM_TMS | I | ARM JTAG test mode selector pin |

### General-Purpose Input/Out Pins (GPIO)

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 65 | GPIO0 | I/O | GPIO0. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 66 | GPIO1 | I/O | GPIO1. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 15 | GPIO2 | I/O | GPIO2. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 16 | GPIO3 | I/O | GPIO3. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 17 | GPIO4 | I/O | GPIO4. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 18 | GPIO5 | I/O | GPIO5. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 69 | GPIO6 | I/O | GPIO6. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 70 | GPIO7 | I/O | GPIO7. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 71 | GPIO8 | I/O | GPIO8. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 72 | GPIO9 | I/O | GPIO9. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |
| 87 | GPIO10 | I/O | GPIO10. Can be programmed as general-purpose input, general-purpose output, or specific function. Power-up default is input. |

### Physical Layer Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 29 | TPA0_N | I/O | Twisted pair A differential signal terminals. For an unused port, TPAN and TPAP signals are left open (i.e., TSB43CA42 for Port 2). |
| 36 | TPA1_N | I/O | |
| 42 | TPA2_N | I/O | |
| 30 | TPA0_P | I/O | |
| 37 | TPA1_P | I/O | |
| 43 | TPA2_P | I/O | |

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 25 | TPB0_N | I/O | Twisted pair B differential signal terminals.<br>For an unused port, TPBN and TPBP signals are left open (i.e., TSB43CA42 for Port 2). |
| 33 | TPB1_N | I/O | |
| 39 | TPB2_N | I/O | |
| 26 | TPB0_P | I/O | |
| 34 | TPB1_P | I/O | |
| 40 | TPB2_P | I/O | |
| 31 | TPBIAS0 | I/O | Twisted pair bias output. These signals provide the 1.86-V nominal bias voltage needed for proper operation of the twisted pair driver and receivers for signaling an active connection to a remote node.<br>For an unused port, TPBIAS is left unconnected (i.e., TSB43CA42 for Port 2). |
| 38 | TPBIAS1 | I/O | |
| 44 | TPBIAS2 | I/O | |
| 46 | R1 | – | Current setting resistors. These pins are connected to external resistors to set the internal operating currents and cable driver output currents. |
| 47 | R0 | – | |
| 49 | FILTER0 | I/O | PLL filter terminals. These terminals are connected to an external capacitor to form a lag-lead filter required for stable operation of the internal frequency-multiplier PLL, which is using the crystal oscillator. |
| 50 | FILTER1 | I/O | |
| 52 | XI | – | Crystal oscillator inputs. These terminals connect to a 24.576-MHz parallel resonant fundamental mode crystal. |
| 53 | XO | – | |
| 22 | CPS | I | Cable power status. This input to iceLynx-Micro detects if cable power is present. This pin must be connected to the cable power through 390-kΩ resistor. |
| 19 | MSPCTL | I | Maximum speed of PHY. When this signal is high; S100 and S200 operation.<br>When this signal is low; S100, S200, and S400 operation. |
| 61 | LINKON | O | Link-on output. This signal is asserted whenever LPS is low and a link-on packet is received from the 1394 bus. |

### High Speed Data Interface (HSDI) Port 0 Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 136 | HSDI0_60958_IN | I | 60958 data input |
| 137 | HSDI0_AMCLK_IN | I | Audio master clock input. This clock is used to decode the biphase encoding of 60958 data. This pin is also used to input the 1.5*BCLK for flow control mode. |
| 140 | HSDI0_AVz | O | HSDI port 0 available. Programmable. Default active low. For receive from 1394, this signal indicates if a 1394 packet is available in the receive buffer for reading. The HSDI_AV signal for MPEG2 data also depends on time stamp based release.<br>For transmit to 1394 , this signal indicates buffer level in HSDI TX modes 8 and 9 by programming a CFR. If the buffer level is above a programmed level, HSDI_AV will be asserted. |
| 138 | HSDI0_CLKz | I | HSDI port 0 clock. Programmable. Default rising edge sample. This clock is used to operate the HSDI port 0 logic. In parallel mode, the maximum clock is 27 MHz. In serial mode, the maximum clock is 70 MHz.<br>This signal is output to HSDI1_CLKz in pass-through mode.<br>This signal is used as HSDI0_MLPCM_BCLK for DVD-audio transmit. |
| 143 | HSDI0_D0 | I/O | HSDI port 0 data 0 pin. Data 0 is the least significant bit on the HSDI data bus. In serial mode, only HSDI0_D0 is used. This signal is output to HSDI1_D0 in pass-through mode.<br>This signal is used as HSDI0_MLPCM_D0 for DVD-audio transmit. |
| 144 | HSDI0_D1 | I/O | HSDI port 0 Data 1 pin This signal is output to HSDI1_D1 in pass-through mode.<br>This signal is used as HSDI0_MLPCM_D1 for DVD-audio transmit. |
| 147 | HSDI0_D2 | I/O | HSDI port 0 Data 2 pin This signal is output to HSDI1_D2 in pass-through mode.<br>This signal is used as HSDI0_MLPCM_D2 for DVD-audio transmit. |
| 148 | HSDI0_D3 | I/O | HSDI port 0 Data 3 pin This signal is output to HSDI1_D3 in pass-through mode.<br>This signal is used as HSDI0_MLPCM_A for DVD-audio transmit. |
| 149 | HSDI0_D4 | I/O | HSDI port 0 data 4 pin This signal is output to HSDI1_D4 in pass-through mode |
| 150 | HSDI0_D5 | I/O | HSDI port 0 data 5 pin This signal is output to HSDI1_D5 in pass-through mode |
| 151 | HSDI0_D6 | I/O | HSDI port 0 data 6 pin This signal is output to HSDI1_D6 in pass-through mode |
| 152 | HSDI0_D7 | I/O | HSDI port 0 data 7 pin Data 0 is the most significant bit on the HSDI data bus.<br>This signal is output to HSDI1_D7 in pass-through mode |

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 142 | HSDI0_DVALIDz | I/O | HSDI port 0 data valid pin. Programmable. Default active high. This pin indicates if data on the HSDI data bus valid for reading or writing.<br>For transmit to 1394, this signal is provided by the system with the data.<br>For receive from 1394, iceLynx-Micro provides this signal with the data.<br>For HSDI DV modes, this signal is used as HSDI0_FrameSync indicating DV frame boundary.<br>This signal is output to HSDI1_DVALIDz in pass-through mode.<br>If not used in transmit mode, this signal is pulled low. |
| 139 | HSDI0_ENz | I | HSDI port 0 enable. Programmable. Default active low. Input by the system to enable the HSDI for both transmit to and receive from 1394.<br>If not used, this signal is pulled enabled (low or high depending on the polarity set). The application can use HSDI_DVALID or HSDI_SYNC to validate the HSDI data.<br>This signal is used as HSDI0_MLPCM_LRCLK for DVD-audio transmit. |
| 141 | HSDI0_SYNCz | I/O | HSDI port 0 sync signal. Programmable. Default active high. This signal indicates the start of packet.<br>For transmit to 1394, this signal is provided by the system with the data.<br>For receive from 1394, iceLynx-Micro provides this signal with the data.<br>This signal is output to HSDI1_SYNCz in pass-through mode. If not used in transmit mode, this signal is pulled low or high depending on the polarity. |

### High Speed Data Interface (HSDI) Port 1 Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 169 | HSDI1_AMCLK_IN | I | Audio master clock input. This clock is used to decode the biphase encoding of 60958 data.<br>This pin also inputs the 1.5*BCK for flow control mode. MLPCM interface, HSDI1 audio port, and HSDI1 video port share IsoPathBuffer 1. Only one interface can access the buffer at a time. |
| 170 | HSDI1_AMCLK_OUT | O | Audio master clock output. This clock is derived from the VCO_CLK input. 60958 data output from iceLynx-Micro is biphase encoded using this clock. |
| 171 | HSDI1_AUDIO_ERR | O | Audio error signal. iceLynx-Micro asserts this signal whenever an audio error condition occurs. (Receive from 1394 only.) |
| 172 | HSDI1_AUDIO_MUTE | O | Audio mute status. iceLynx-Micro asserts this signal whenever an audio mute condition has occurred, and hardware has muted the HSDI1 audio interface. (Receive from 1394 only.) |
| 173 | HSDI1_60958_IN | I | 60958 data input |
| 174 | HSDI1_60958_OUT | O | 60958 data output<br>This signal is also used as FLWCTRL_DVALID in flow control data valid mode. |
| 155 | HSDI1_AVz | O | HSDI port 1 available. Programmable. Default active low.<br>For receive from 1394, this signal indicates if a 1394 packet is available in the receive buffer for reading. The HSDI_AV signal for MPEG2 data also depends on time stamp based release.<br>For transmit to 1394, this signal indicates the buffer level in HSDI TX modes 8 and 9 by programming a CFR. This pin indicates buffer level in transmit mode by programming a CFR. If the buffer level is above a programmed level, HSDI_AV is asserted. |
| 153 | HSDI1_CLKz | I/O | HSDI port 1 clock. Programmable. Default rising edge sample.<br>This clock is used to operate the HSDI port 1 logic. In parallel mode, the maximum clock is 27 MHz. In serial mode, the maximum clock is 70 MHz.<br>This signal is used as HSDI1_SACD_BCLK for SACD transmit and receive.<br>MLPCM interface, HSDI1 audio port, and HSDI1 video port share IsoPathBuffer 1. Only one interface can access the buffer at a time. |
| 158 | HSDI1_D0 | I/O | HSDI port 1 data 0 pin. Data 0 is the least significant bit on the HSDI data bus. In serial mode, only HSDI0_D0 is used.<br>This signal is used as HSDI1_SACD_D0 for SACD transmit and receive. |
| 159 | HSDI1_D1 | I/O | HSDI port 1 data 1 pin. This signal is used as HSDI1_SACD_D1 for SACD transmit and receive. |
| 163 | HSDI1_D2 | I/O | HSDI port 1 data 2 pin. This signal is used as HSDI1_SACD_D2 for SACD transmit and receive. |

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 164 | HSDI1_D3 | I/O | HSDI port 1 data 3 pin. This signal is used as HSDI1_SACD_D3 for SACD transmit and receive. |
| 165 | HSDI1_D4 | I/O | HSDI port 1 data 4 pin. This signal is used as HSDI1_SACD_D4 for SACD transmit and receive. |
| 166 | HSDI1_D5 | I/O | HSDI port 1 data 5 pin. This signal is used as HSDI1_SACD_D5 for SACD transmit and receive. |
| 167 | HSDI1_D6 | I/O | HSDI port 1 data 6 pin. This signal is used as HSDI1_SACD_D6 for SACD transmit and receive. |
| 168 | HSDI1_D7 | I/O | HSDI port 1 data 7 pin. Data 0 is the most significant bit on the HSDI data bus. |
| 157 | HSDI1_DVALIDz | I/O | HSDI port 1 data valid pin. Programmable. Default active high.<br>This pin indicates if data on the HSDI data bus valid for reading or writing.<br>For transmit to 1394, this signal is provided by the system with the data.<br>For receive from 1394, iceLynx-Micro provides this signal with the data.<br>For HSDI DV modes, this signal is used as HSDI0_FrameSync indicating DV frame boundary.<br>If not used in transmit mode, this signal is pulled low. |
| 154 | HSDI1_ENz | I | HSDI port 1 enable. Programmable. Default active low. Input by the system to enable the HSDI for both transmit to and receive from 1394.<br>If not used, this signal is pulled enabled (low or high depending on the polarity set). The application can use HSDI_DVALID or HSDI_SYNC to validate the HSDI data. |
| 156 | HSDI1_SYNCz | I/O | HSDI port 1 sync signal. Programmable. Default active high.<br>This signal indicates the start of a packet.<br>For transmit to 1394, this signal is provided by the system with the data.<br>For receive from 1394, iceLynx-Micro provides this signal with the data.<br>If not used in transmit mode, this signal is pulled low or high depending on the polarity.<br>This signal is used as HSDI1_SACD_FRAME for SACD transmit and receive. |

### DVD-Audio Interface Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 14 | MLPCM_A | I/O | Audio MLPCM interface ancillary data. Ancillary data is input/output using this pin. For DVD-Audio, MLPCM_LRCLK determines if ancillary left or ancillary right data is present.<br>This signal also functions as FLWCTL_A in flow control mode |
| 9 | MLPCM_BCLK | I/O | Audio MLPCM interface bit clock.<br>Multiple functions: • DVD audio BCK (I)<br>• DVD audio BCK (O)<br>• Flow control BCK (I/O)<br>MLPCM interface, HSDI1 audio port, and HSDI1 video port share IsoPathBuffer 1. Only one interface can access the buffer at a time. |
| 11 | MLPCM_D0 | I/O | Audio MLPCM interface D0. Contains channel 1 and channel 2 information. MLPCM_LRCLK determines which channel is present.<br>This signal also functions as FLWCTL_D0 in flow control mode. |
| 12 | MLPCM_D1 | I/O | Audio MLPCM interface D1. Contains channel 3 and channel 4 information. MLPCM_LRCLK determines which channel is present.<br>This signal also functions as FLWCTL_D0 in flow control mode |
| 13 | MLPCM_D2 | I/O | Audio MLPCM interface D2. Contains channel 5 and channel 6 information. MLPCM_LRCLK determines which channel is present.<br>This signal also functions as FLWCTL_D0 in flow control mode |
| 10 | MLPCM_LRCLK | I/O | Audio MLPCM interface left-right clock.<br>Multiple functions: • DVD audio LRCLK (I)<br>• DVD audio LRCLK (O)<br>• Flow control LRCLK (I/O) |

### Audio Phase Lock Loops Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 7 | DIV_VCO | O | Output for external phase detector.<br>This signal is the divided VCO_CLK. It used by the external phase detector to compare with the REF_SYT signal. The divide ratios are setup in CFR. |
| 8 | PLL_TEST | O | PLL test.<br>This signal is used for internal TI testing and must be unconnected for normal operation. |
| 6 | REF_SYT | O | Output for external phase detector.<br>This signal represents the SYT match for received audio or DV packets. The phase detector uses it as input to detect differences between the SYT match and the VCO clock. |
| 5 | VCO_CLK | I | Input from VCO.<br>This signal generates internal audio and DV clocks for receive clock recovery.<br>Audio frequency: 33.868 MHz or 36.864 MHz.<br>DV frequency: 30.72 MHz, 27 MHz |

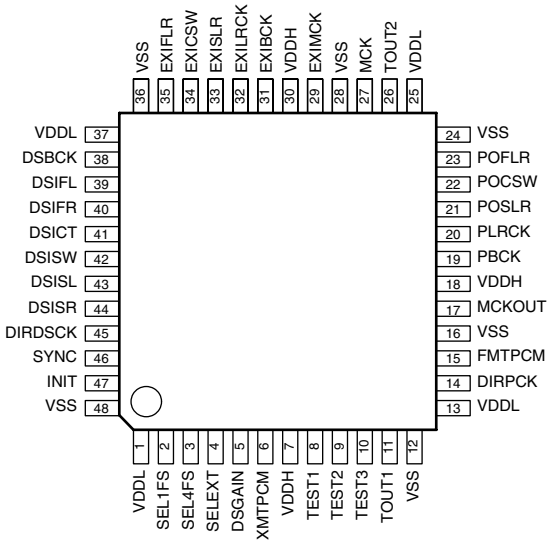
### Test Mode Pins

| No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 2 | TEST_MODE0 | I/O | Test mode.<br>Used for internal TI testing. Must be pulled low for normal operation. |
| 3 | TEST_MODE1 | I/O | |
| 57 | TEST_MODE2 | I/O | |
| 58 | TEST_MODE3 | I/O | |
| 67 | TEST4 | I/O | Factory test pin.<br>Must tie to low for normal operation. Recommend connection to ground through a 1 kΩ resistor. |
| 68 | TEST5 | I/O | |

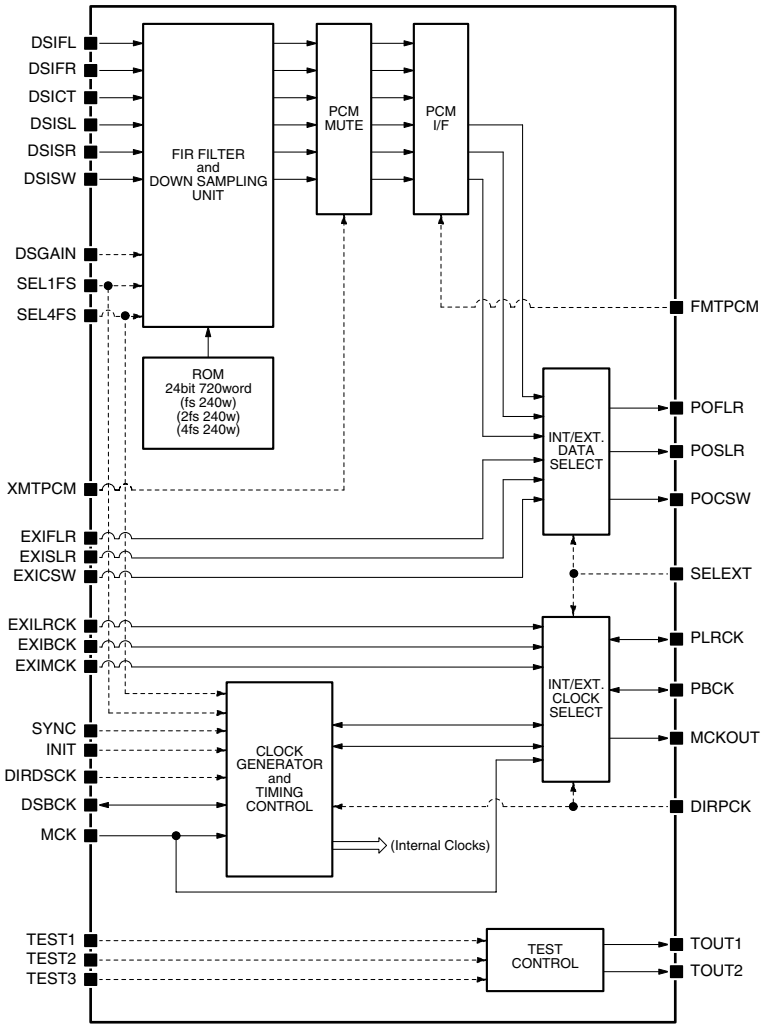
## SM5819AF (1394 ASSY : IC401)

• 6-channel DS-PCM Converter

### ● Pin Arrangement (Top view)




### ● Block Diagram



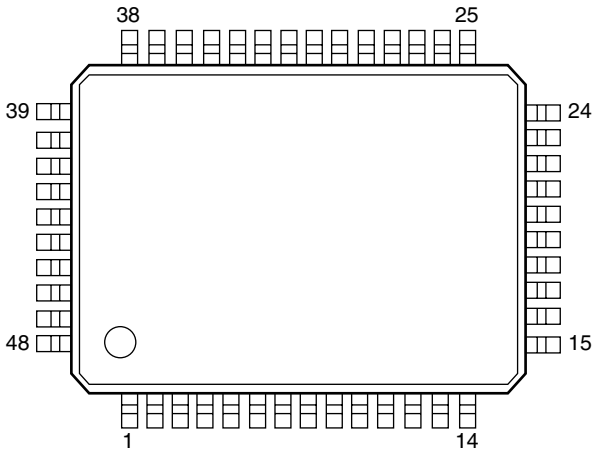
## ● Pin Function

| No. | Name | I/O | Function |
|---|---|---|---|
| 1 | VDDL | – | Core power supply |
| 2 | SEL1FS | I | PCM output rate select 1 L: 2fs/4fs, H: fs |
| 3 | SEL4FS | I | PCM output rate select 2 L: 2fs, H: 4fs |
| 4 | SELEXT | I | fs/2fs/4fs output and external data output select L: fs/2fs/4fs data, H: external data (EXI**) |
| 5 | DSGAIN | I | DSD signal gain setting L: 100% modulation = 0dB, H: 50% modulation = 0dB |
| 6 | XMTPCM | I | PCM output mute control input L: Mute ON, H: Mute OFF |
| 7 | VDDH | – | I/O power supply |
| 8 | TEST1 | I | Test input 1 (must be open or tie LOW for normal operation) |
| 9 | TEST2 | I | Test input 2 (must be open or tie LOW for normal operation) |
| 10 | TEST3 | I | Test input 3 (must be open or tie LOW for normal operation) |
| 11 | TOUT1 | O | Test output 1 |
| 12 | VSS | – | Ground |
| 13 | VDDL | – | Core power supply |
| 14 | DIRPCK | I | PCM output PBCK/PLRCK I/O select L: Output (master mode), H: Input (slave mode) |
| 15 | FMTPCM | I | PCM output format select L: MSB-first left-justified 32-bit, H: IIS 32-bit |
| 16 | VSS | – | Ground |
| 17 | MCKOUT | O | System clock output (selected by SELEXT) |
| 18 | VDDH | – | I/O power supply |
| 19 | PBCK | I/O | PCM output BCK bit clock |
| 20 | PLRCK | I/O | PCM output LRCK word clock |
| 21 | POSLR | O | PCM data output: surround left/right-channel |
| 22 | POCSW | O | PCM data output: center/subwoofer channel |
| 23 | POFLR | O | PCM data output: front left/right-channel |
| 24 | VSS | – | Ground |
| 25 | VDDL | – | Core power supply |
| 26 | TOUT2 | O | Test output 2 |
| 27 | MCK | I | Master clock input: 512fs (22.5792MHz, fs = 44.1kHz) |
| 28 | VSS | – | Ground |
| 29 | EXIMCK | I | External system clock input |
| 30 | VDDH | – | I/O power supply |
| 31 | EXIBCK | I | External PCM data BCK bit clock input |
| 32 | EXILRCK | I | External PCM data LRCK word clock input |
| 33 | EXISLR | I | External PCM data input: surround left/right-channel |
| 34 | EXICSW | I | External PCM data input: center/subwoofer channel |
| 35 | EXIFLR | I | External PCM data input: front left/right-channel |
| 36 | VSS | – | Ground |
| 37 | VDDL | – | Core power supply |
| 38 | DSBCK | I/O | DSD data input bit clock. Controlled by DIRDSCK |
| 39 | DSIFL | I | DSD data input: front left-channel |
| 40 | DSIFR | I | DSD data input: front right-channel |
| 41 | DSICT | I | DSD data input: center channel |
| 42 | DSISW | I | DSD data input: subwoofer channel |
| 43 | DSISL | I | DSD data input: surround left-channel |
| 44 | DSISR | I | DSD data input: surround right-channel |
| 45 | DIRDSCK | I | DSBCK I/O select L: input (slave), H: output (master) |
| 46 | SYNC | I | Forced synchronization input (active-HIGH edge) |
| 47 | INIT | I | Initialization input: Active-LOW, Resync on L -> H |
| 48 | VSS | – | Ground |

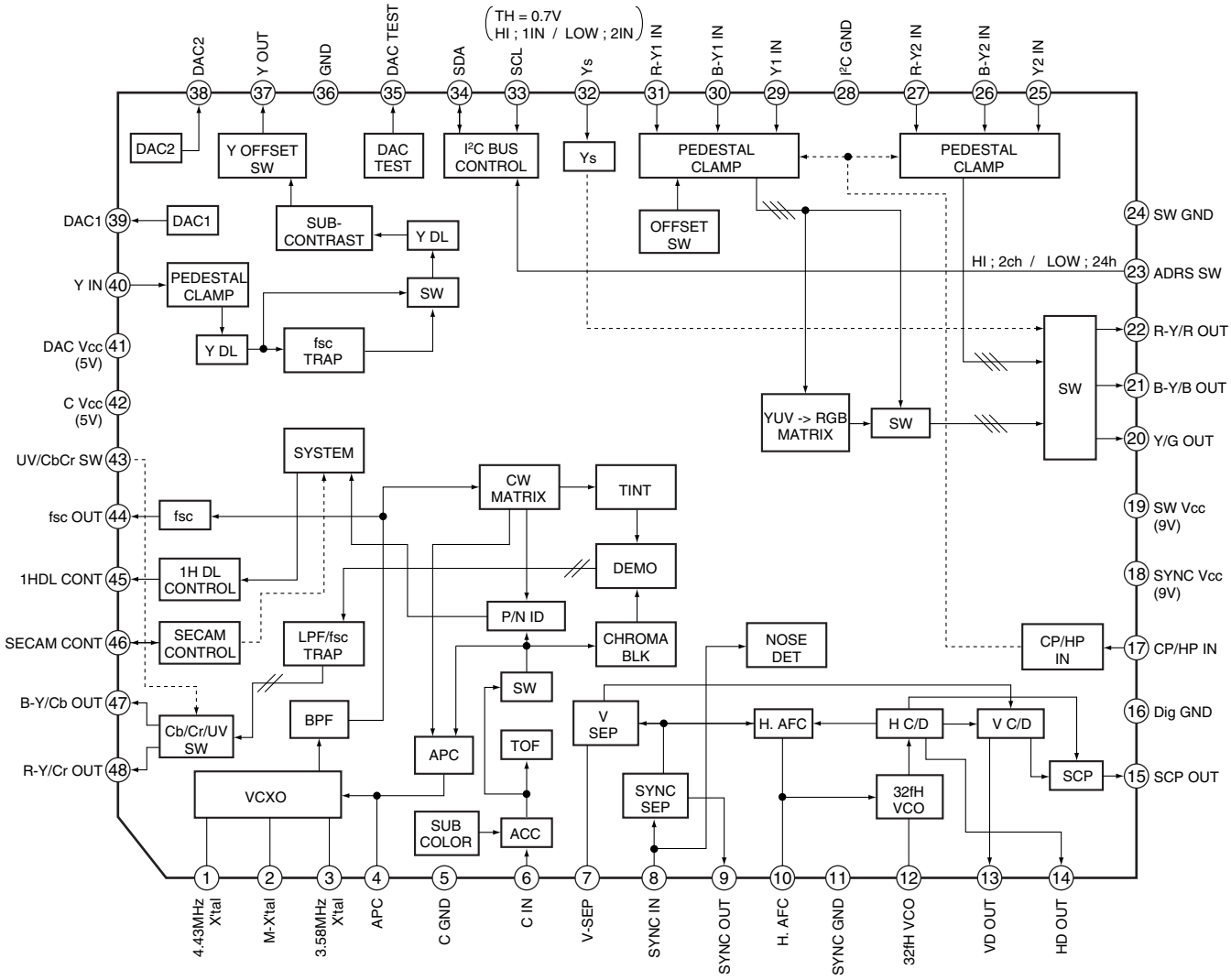
## TA1270BF (VIDEO CONVERT ASSY : IC3514)

• PAL/NTSC Video Chroma and Sync Processing System for PIP/POP/PAP

### ● Pin Arrangement (Top view)




### ● Block Diagram



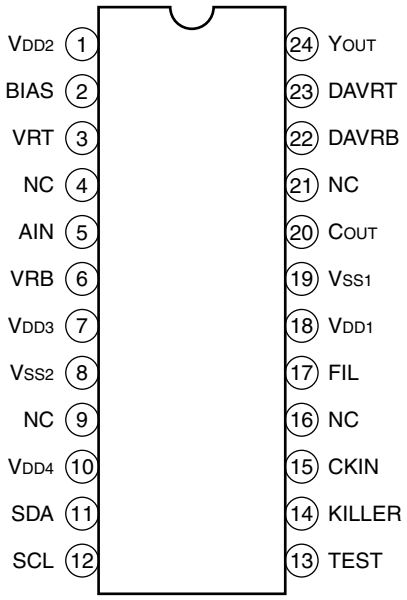
## ● Pin Function

| No. | Name | Function |
|---|---|---|
| 1 | X'tal-1 | Connect crystal.<br>Serial capacitance can vary oscillator frequency f0 ; parallel capacitance can vary oscillator adjustment range. |
| 2 | X'tal-2 | |
| 3 | X'tal-3 | |
| 4 | APC filter | Connect APC filter for CHROMA demodulation. The voltage of this pin determines the VCXO oscillator frequency. |
| 5 | C GND | CHROMA processor GND pin |
| 6 | CHROMA input | CHROMA input pin. Input CHROMA signal after Y / C separation. |
| 7 | V-SEP | Connect vertical sync separation filter. |
| 8 | Sync input | Sync separator circuit input pin. Input via the clamp capacitor. |
| 9 | Sync output | Outputs sync signal separated using the sync separator circuit.Open collector output. Connect a pull-up resistor. |
| 10 | AFC filter | Connect a horizontal AFC filter. The voltage of this pin determines the horizontal output frequency. |
| 11 | SYNC GND | Sync processor GND pin |
| 12 | 32 fH VCO | Connect a ceramic oscillator for horizontal oscillation. |
| 13 | VP output | Vertical pulse output pin |
| 14 | HD output | Outputs HD pulse processed by the AFC. HD output phase or pulse width can be changed by bus setting. |
| 15 | SCP output | Outputs sand castle pulse (SCP). The output signals are clamp pulse, horizontal blanking pulse, and vertical blanking pulse. The minimum load resistance is 3 kΩ. |
| 16 | Dig GND | Logic block GND pin |
| 17 | CP / HP input | Input pin for CP / HP pulse used to operate the SW circuit. CP is used as clamp pulse ; HP as blanking pulse. |
| 18 | SYNC $V_{CC}$ | $V_{CC}$ pins for sync processor block and SW block. Connect 9 V (Typ.). |
| 19 | SW $V_{CC}$ | |
| 20 | Y / G output | Output Y / B-Y / R-Y or R / G / B. YUV / RGB output is switched by bus setting. |
| 21 | B-Y / B output | |
| 22 | R-Y / R output | |
| 23 | ADRS SW | Pin used to switch slave addresses. GND – 24H, VCC – 2CH |
| 24 | SW GND | Switch block GND pin |
| 25 | Y2 input | Y2 / B-Y2 / R-Y2 (YUV2 input) or R2/ G2 / B2 input pin. Input via capacitor used for clamp operation. |
| 26 | B-Y2 input | |
| 27 | R-Y2 input (YUV2) | |
| 28 | $I^2C$ GND | $I^2C$ block GND pin |
| 29 | Y1 input | Y1 / B-Y1 / R-Y1 (YUV1 input) or R1/ G1 / B1 input pin.<br>Input via capacitor used for clamp operation. |
| 30 | B-Y1 input | |
| 31 | R-Y1 input (YUV1) | |
| 32 | Ys | High-speed switch for switching input pins 25, 26, and 27 (YUV2) and input pins 29, 30, and 31 (YUV1). The threshold is 0.7 V. |
| 33 | SCL | $I^2C$ Bus SCL pin |
| 34 | SDA | $I^2C$ Bus SDA pin |
| 35 | DAC TEST | DAC monitor pin for IC shipping inspection. |
| 36 | GND | GND pin |
| 37 | Y output | Outputs Y signal which passed fsc trap (trap is set on or off by Bus) and Y delay line circuit. |
| 38 | DAC2 | 1 bit DAC output pins |
| 39 | DAC1 | |
| 40 | Y input | Composite video signal or Y signal input pin. Input via the clamp capacitor. |
| 41 | DAC $V_{CC}$ | $V_{CC}$ pins for DAC block and CHROMA processing block. Connect 5V (Typ.). |
| 42 | C $V_{CC}$ | |
| 43 | UV / CbCr SW | UV / CbCr demodulation switch. OPEN – UV GND – CbCr CbCr demodulation is effective for NTSC only. |
| 44 | fsc output | Outputs crystal oscillator fsc. The pin voltage goes high only when 3.58NTSC is received. |
| 45 | 1HDL CONT | Outputs PAL / SECAM / NTSC identification result. Adjust to DC and connect output to 1H DL IC. |
| 46 | SECAM CONT | I / O pin used to control SECAM demodulator IC. If 250 É A or more flows from this pin, SECAM is determined. |
| 47 | B-Y / Cb output | Outputs B-Y (U) signal or Cb signal. Incorporates LPF to reject carrier. |
| 48 | R-Y / Cr output | Outputs R-Y (V) signal or Cr signal. Incorporates LPF to reject carrier. Pulling up the pin with 10 kΩ monitors CHROMA signal after ACC and TOF circuits (before demo input). |

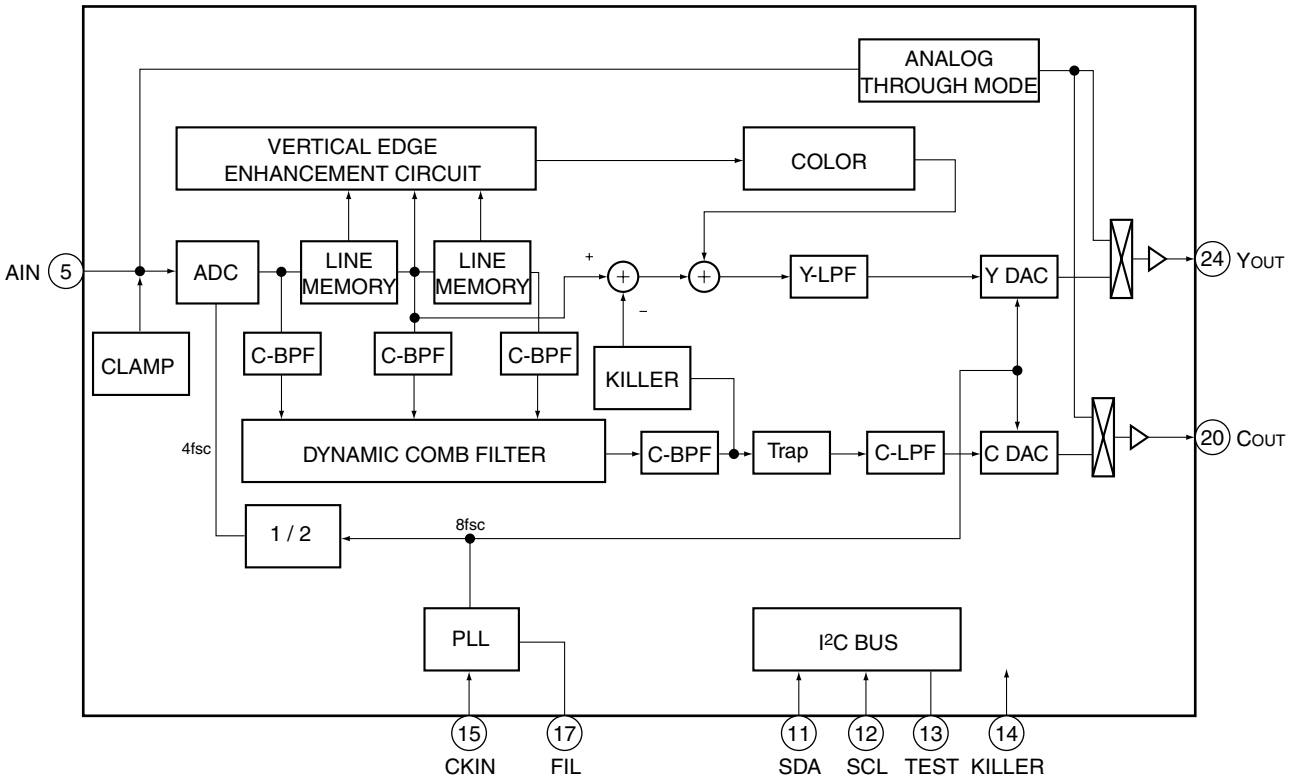
## TC90A49F (VIDEO CONVERT ASSY : IC3508)

• 3 Line Digital Y/C Separator IC

### ● Pin Arrangement (Top view)




### ● Block Diagram



## ● Pin Function

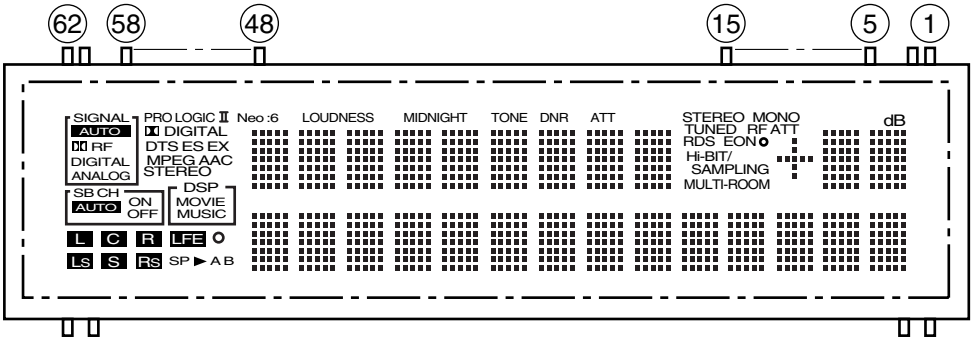
| No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | $V_{DD2}$ | – | ADC and DAC analog power supply |
| 2 | BIAS | – | ADC bias voltage.<br>Stabilize by attaching a 0.01µF capacitor. |
| 3 | VRT | – | ADC input range D upper limit voltage.<br>Stabilize by attaching a 0.01µF capacitor. |
| 4 | NC | – | Non connection |
| 5 | AIN | I | ADC input. Inputs 1.0 Vp-p video signal.<br>Sync tip clamp is performed. |
| 6 | VRB | – | ADC input range D lower limit voltage.<br>Stabilize by attaching a 0.01µF capacitor. |
| 7 | $V_{DD3}$ | – | ADC and DAC logic power supply |
| 8 | $V_{SS2}$ | – | Logic and internal DRAM GND (digital) |
| 9 | NC | – | Non connection |
| 10 | $V_{DD4}$ | – | Internal DRAM power supply |
| 11 | SDA | – | $I^2C$ BUS SDA |
| 12 | SCL | – | $I^2C$ BUS SCL |
| 13 | TEST | I | Shipment test mode switch or $I^2C$ bus setting reset pin.<br>When High, test mode, setting all $I^2C$ bus settings to 0.<br>Hold High for at least 100µs. Send $I^2C$ bus settings when this pin is Low. |
| 14 | KILLER | I | Y signal comb function ON / OFF switch.<br>When High, comb OFF. When Low, comb ON.<br>When [data 3 : bit 0] is 1, used as vertical edge enhancement circuit ON / OFF switch. |
| 15 | CKIN | I | Clock input pin. This pin put a sine wave which is locked to the frequency of the burst signal in the input video signal.<br>Amplitude is 300 mV p-p to 2 Vp-p.<br>Input as high an amplitude as possible without affecting peripheral circuits. |
| 16 | NC | – | Non connection |
| 17 | FIL | O | Connect the APC filter in the 8 fsc PLL circuit |
| 18 | $V_{DD1}$ | – | PLL power supply |
| 19 | $V_{SS1}$ | – | ADC, DAC, and PLL GND (analog) |
| 20 | $C_{OUT}$ | O | Outputs chrominance signal. External simple LPF for clock elimination recommended. |
| 21 | NC | – | Non connection |
| 22 | DAVRB | – | DAC output range D lower limit voltage.<br>Stabilize by attaching a 0.01µF capacitor. |
| 23 | DAVRT | – | DAC output range D upper limit voltage.<br>Stabilize by attaching a 0.01µF capacitor. |
| 24 | $Y_{OUT}$ | O | Outputs luminance signal. External simple LPF for clock elimination recommended. |

## 7.2.2 DISPLAY

### ■ AAV7087 (DISPLAY ASSY : V3000)

#### • FL DISPLAY

#### • Pin Assignment

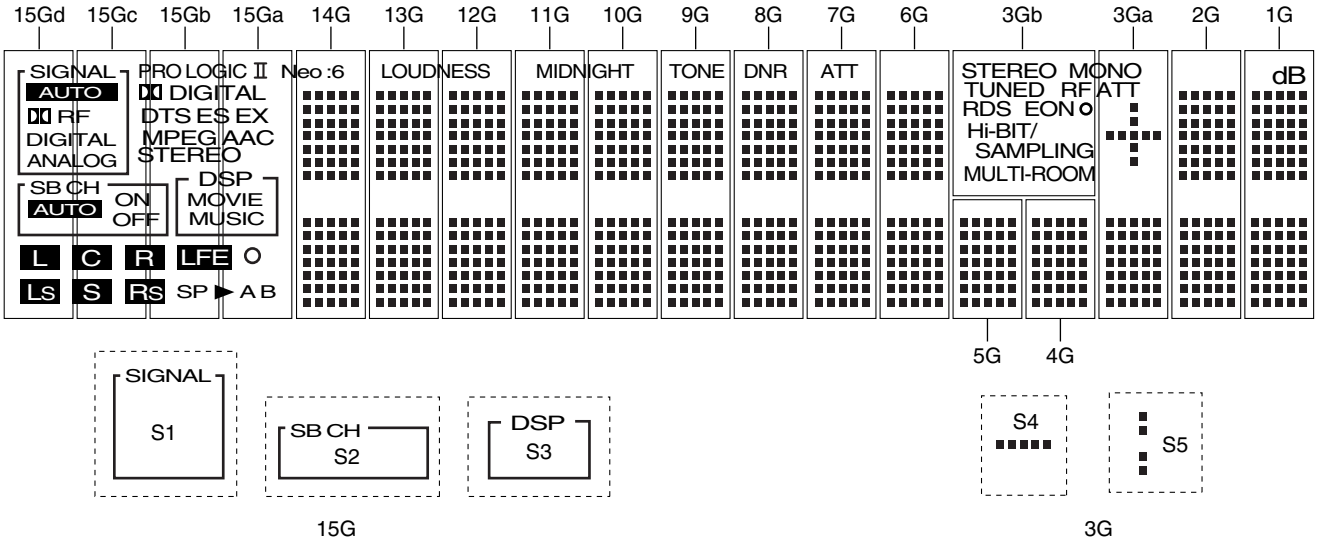



#### • Pin Connection

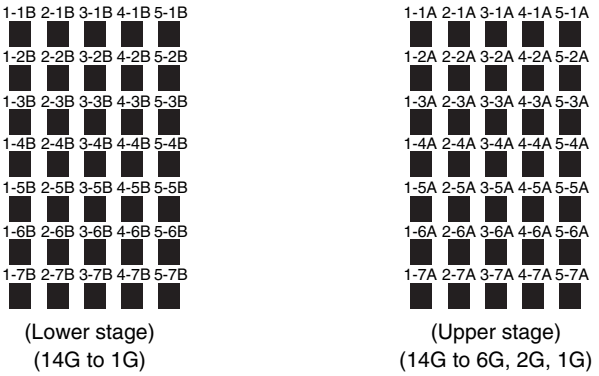
| Pin No. | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 | 48 | 47-3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection | F2 | F2 | NP | NP | GND | GND | NC | VH | NC | VDD | BK | LAT | CLK | SI | SO | NP | F1 | F1 |

NOTE
1) F1, F2..... Filament
2) NP..... No pin (5-15 cut it by 2mm)
3) DL..... Datum Line
4) GND..... GND pin
5) VH..... High Voltage Supply pin
6) VDD..... Logic Voltage Supply pin
7) NC..... No connection
(NC pin should be electrically open on the PC board)
8) BK..... Driver Output Blanking
9) LAT..... Latch Control Input
10) CLK..... Shift Register Clock
11) SI..... Serial Data Input
12) SO..... Serial Data Output
(to be open, if don't use)
13) Field of vision is a minimum of 21°
from the lower side.

#### • Grid Assignment




#### • Segment Designation



## • Anode Connection

| | 15Gd-15Ga | 14G | 13G | 12G | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3Gb, 3Ga | 2G | 1G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P1 | Neo:6 | | LOUDNESS | | MIDNIGHT | | TONE | DNR | ATT | – | – | – | STEREO | – | dB |
| P2 | PROLOGIC | 1-1A | 1-1A | 1-1A | 1-1A | 1-1A | 1-1A | 1-1A | 1-1A | 1-1A | – | – | MONO | 1-1A | 1-1A |
| P3 | Ⅱ | 2-1A | 2-1A | 2-1A | 2-1A | 2-1A | 2-1A | 2-1A | 2-1A | 2-1A | – | – | TUNED | 2-1A | 2-1A |
| P4 | S1 | 3-1A | 3-1A | 3-1A | 3-1A | 3-1A | 3-1A | 3-1A | 3-1A | 3-1A | – | – | RF ATT | 3-1A | 3-1A |
| P5 | AUTO | 4-1A | 4-1A | 4-1A | 4-1A | 4-1A | 4-1A | 4-1A | 4-1A | 4-1A | – | – | RDS | 4-1A | 4-1A |
| P6 | RF | 5-1A | 5-1A | 5-1A | 5-1A | 5-1A | 5-1A | 5-1A | 5-1A | 5-1A | – | – | EON | 5-1A | 5-1A |
| P7 | DIGITAL | 1-2A | 1-2A | 1-2A | 1-2A | 1-2A | 1-2A | 1-2A | 1-2A | 1-2A | – | – | ○ | 1-2A | 1-2A |
| P8 | ANALOG | 2-2A | 2-2A | 2-2A | 2-2A | 2-2A | 2-2A | 2-2A | 2-2A | 2-2A | – | – | HI-BIT/ SAMPLING | 2-2A | 2-2A |
| P9 | DIGITAL | 3-2A | 3-2A | 3-2A | 3-2A | 3-2A | 3-2A | 3-2A | 3-2A | 3-2A | – | – | S4 | 3-2A | 3-2A |
| P10 | DTS | 4-2A | 4-2A | 4-2A | 4-2A | 4-2A | 4-2A | 4-2A | 4-2A | 4-2A | – | – | S5 | 4-2A | 4-2A |
| P11 | ES | 5-2A | 5-2A | 5-2A | 5-2A | 5-2A | 5-2A | 5-2A | 5-2A | 5-2A | – | – | – | 5-2A | 5-2A |
| P12 | EX | 1-3A | 1-3A | 1-3A | 1-3A | 1-3A | 1-3A | 1-3A | 1-3A | 1-3A | – | – | – | 1-3A | 1-3A |
| P13 | MPEG | 2-3A | 2-3A | 2-3A | 2-3A | 2-3A | 2-3A | 2-3A | 2-3A | 2-3A | – | – | – | 2-3A | 2-3A |
| P14 | AAC | 3-3A | 3-3A | 3-3A | 3-3A | 3-3A | 3-3A | 3-3A | 3-3A | 3-3A | – | – | – | 3-3A | 3-3A |
| P15 | STEREO | 4-3A | 4-3A | 4-3A | 4-3A | 4-3A | 4-3A | 4-3A | 4-3A | 4-3A | – | – | – | 4-3A | 4-3A |
| P16 | S2 | 5-3A | 5-3A | 5-3A | 5-3A | 5-3A | 5-3A | 5-3A | 5-3A | 5-3A | – | – | – | 5-3A | 5-3A |
| P17 | AUTO | 1-4A | 1-4A | 1-4A | 1-4A | 1-4A | 1-4A | 1-4A | 1-4A | 1-4A | – | – | – | 1-4A | 1-4A |
| P18 | ON | 2-4A | 2-4A | 2-4A | 2-4A | 2-4A | 2-4A | 2-4A | 2-4A | 2-4A | – | – | – | 2-4A | 2-4A |
| P19 | OFF | 3-4A | 3-4A | 3-4A | 3-4A | 3-4A | 3-4A | 3-4A | 3-4A | 3-4A | – | – | – | 3-4A | 3-4A |
| P20 | S3 | 4-4A | 4-4A | 4-4A | 4-4A | 4-4A | 4-4A | 4-4A | 4-4A | 4-4A | – | – | – | 4-4A | 4-4A |
| P21 | MOVIE | 5-4A | 5-4A | 5-4A | 5-4A | 5-4A | 5-4A | 5-4A | 5-4A | 5-4A | – | – | – | 5-4A | 5-4A |
| P22 | MUSIC | 1-5A | 1-5A | 1-5A | 1-5A | 1-5A | 1-5A | 1-5A | 1-5A | 1-5A | – | – | – | 1-5A | 1-5A |
| P23 | L | 2-5A | 2-5A | 2-5A | 2-5A | 2-5A | 2-5A | 2-5A | 2-5A | 2-5A | – | – | – | 2-5A | 2-5A |
| P24 | C | 3-5A | 3-5A | 3-5A | 3-5A | 3-5A | 3-5A | 3-5A | 3-5A | 3-5A | – | – | – | 3-5A | 3-5A |
| P25 | R | 4-5A | 4-5A | 4-5A | 4-5A | 4-5A | 4-5A | 4-5A | 4-5A | 4-5A | – | – | – | 4-5A | 4-5A |
| P26 | LS | 5-5A | 5-5A | 5-5A | 5-5A | 5-5A | 5-5A | 5-5A | 5-5A | 5-5A | – | – | – | 5-5A | 5-5A |
| P27 | S | 1-6A | 1-6A | 1-6A | 1-6A | 1-6A | 1-6A | 1-6A | 1-6A | 1-6A | – | – | – | 1-6A | 1-6A |
| P28 | RS | 2-6A | 2-6A | 2-6A | 2-6A | 2-6A | 2-6A | 2-6A | 2-6A | 2-6A | – | – | – | 2-6A | 2-6A |
| P29 | LFE | 3-6A | 3-6A | 3-6A | 3-6A | 3-6A | 3-6A | 3-6A | 3-6A | 3-6A | – | – | – | 3-6A | 3-6A |
| P30 | ○ | 4-6A | 4-6A | 4-6A | 4-6A | 4-6A | 4-6A | 4-6A | 4-6A | 4-6A | – | – | – | 4-6A | 4-6A |
| P31 | SP ▶ | 5-6A | 5-6A | 5-6A | 5-6A | 5-6A | 5-6A | 5-6A | 5-6A | 5-6A | – | – | – | 5-6A | 5-6A |
| P32 | A | 1-7A | 1-7A | 1-7A | 1-7A | 1-7A | 1-7A | 1-7A | 1-7A | 1-7A | – | – | – | 1-7A | 1-7A |
| P33 | B | 2-7A | 2-7A | 2-7A | 2-7A | 2-7A | 2-7A | 2-7A | 2-7A | 2-7A | – | – | – | 2-7A | 2-7A |
| P34 | – | 3-7A | 3-7A | 3-7A | 3-7A | 3-7A | 3-7A | 3-7A | 3-7A | 3-7A | – | – | – | 3-7A | 3-7A |
| P35 | – | 4-7A | 4-7A | 4-7A | 4-7A | 4-7A | 4-7A | 4-7A | 4-7A | 4-7A | – | – | – | 4-7A | 4-7A |
| P36 | – | 5-7A | 5-7A | 5-7A | 5-7A | 5-7A | 5-7A | 5-7A | 5-7A | 5-7A | – | – | – | 5-7A | 5-7A |
| P37 | – | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B | 1-1B |
| P38 | – | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B | 2-1B |
| P39 | – | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B | 3-1B |
| P40 | – | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B | 4-1B |
| P41 | – | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B | 5-1B |
| P42 | – | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B | 1-2B |
| P43 | – | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B | 2-2B |
| P44 | – | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B | 3-2B |
| P45 | – | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B | 4-2B |
| P46 | – | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B | 5-2B |
| P47 | – | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B | 1-3B |
| P48 | – | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B | 2-3B |
| P49 | – | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B | 3-3B |
| P50 | – | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B | 4-3B |
| P51 | – | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B | 5-3B |
| P52 | – | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B | 1-4B |
| P53 | – | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B | 2-4B |
| P54 | – | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B | 3-4B |
| P55 | – | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B | 4-4B |
| P56 | – | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B | 5-4B |
| P57 | – | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B | 1-5B |
| P58 | – | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B | 2-5B |
| P59 | – | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B | 3-5B |
| P60 | – | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B | 4-5B |
| P61 | – | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B | 5-5B |
| P62 | – | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B | 1-6B |
| P63 | – | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B | 2-6B |
| P64 | – | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B | 3-6B |
| P65 | – | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B | 4-6B |
| P66 | – | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B | 5-6B |
| P67 | – | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B | 1-7B |
| P68 | – | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B | 2-7B |
| P69 | – | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B | 3-7B |
| P70 | – | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B | 4-7B |
| P71 | – | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B | 5-7B |

**• Anode Timing Chart**

| | 15Gd-15Ga | 14G | 13G | 12G | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3Gb, 3Ga | 2G | 1G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P1 | T18 | | T17 | | T16 | | T9 | T8 | T7 | – | – | – | T3 | – | T1 |
| P2 | T15 | T14 | T13 | T12 | T11 | T10 | T9 | T8 | T7 | T6 | – | – | T3 | T2 | T1 |
| \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| |
| P11 | T15 | T14 | T13 | T12 | T11 | T10 | T9 | T8 | T7 | T6 | – | – | T3 | T2 | T1 |
| P12 | T15 | T14 | T13 | T12 | T11 | T10 | T9 | T8 | T7 | T6 | – | – | – | T2 | T1 |
| \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| |
| P12 | T15 | T14 | T13 | T12 | T11 | T10 | T9 | T8 | T7 | T6 | – | – | – | T2 | T1 |
| P33 | – | T14 | T13 | T12 | T11 | T10 | T9 | T8 | T7 | T6 | – | – | – | T2 | T1 |
| \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| | \| |
| P71 | – | T14 | T13 | T12 | T11 | T10 | T9 | T8 | T7 | T6 | – | – | – | T2 | T1 |

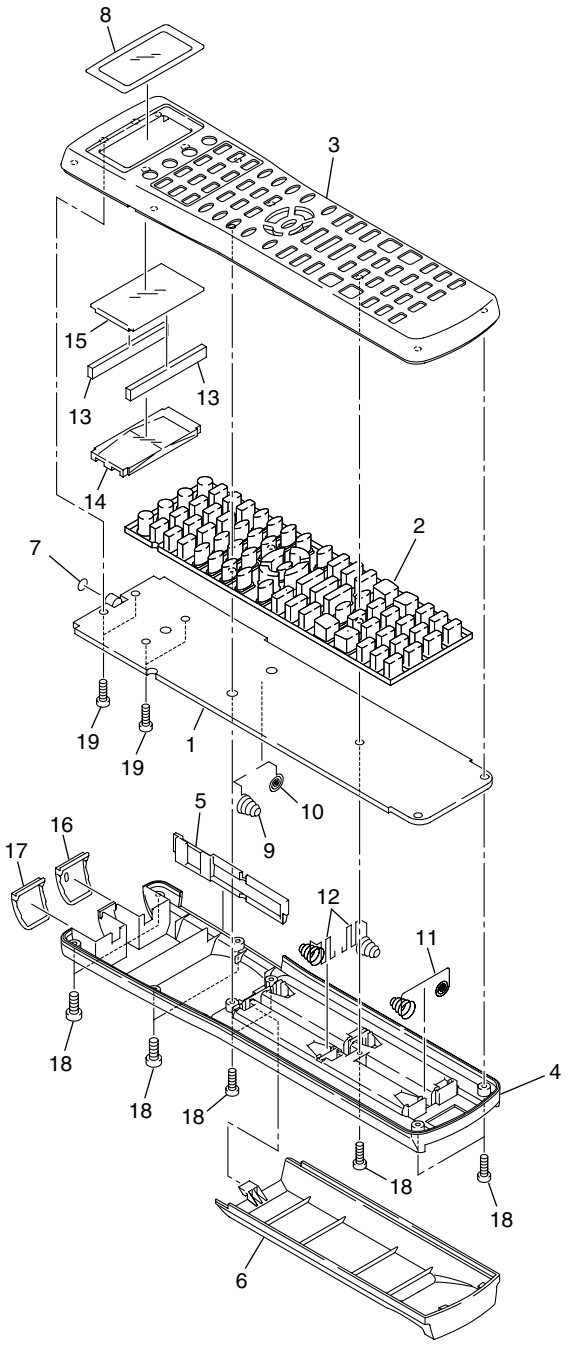
## 7.3 CLEANING

Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

| Position to be cleaned | Cleaning tools |
|---|---|
| Fans | Cleaning paper : GED-008 |

# 7.4 REMOTE CONTROL UNIT

## 7.4.1 EXPLODED VIEWS AND PARTS LIST



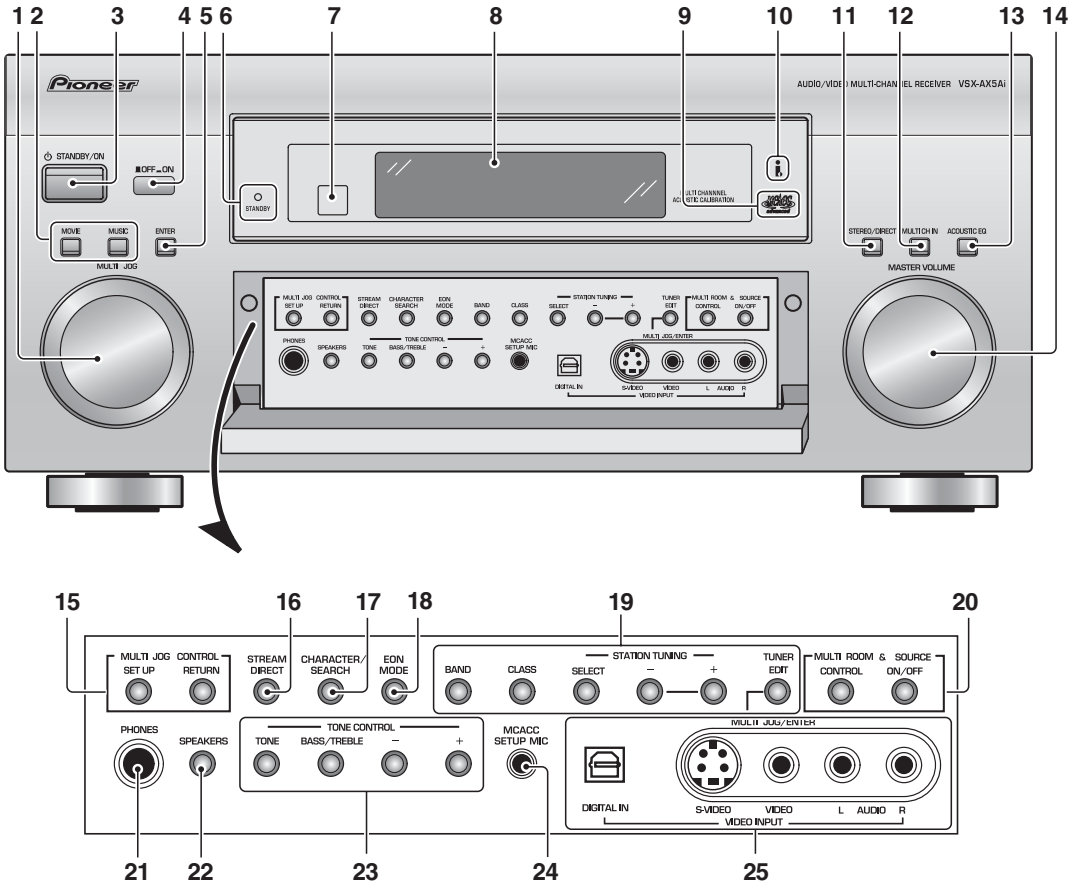

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | PCB Assy | AZC7301 |
| | 2 | Rubber Key | AZA7425 |
| | 3 | Case A | AZN7938 |
| | 4 | Case B | AZN7939 |
| | 5 | Frame | AZN7941 |
| | 6 | Battery Cover | AZN7940 |
| | 7 | MIC Cap | AZN7942 |
| | 8 | Name Plate | 201RRC-314-01L |
| | 9 | Terminal A | 411RRC-212-01G |
| | 10 | Terminal B | 411RRC-213-01G |
| | 11 | Battery Terminal | 413RRC-143-01R |
| | 12 | Spring | 413RRC-171-01G |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 13 | Connector | 423RRC-046-01G |
| | 14 | Plate | 481RRC-018-01G |
| | 15 | Shield Plate | 801RRC-020-01L |
| | 16 | Filter A | 811RRC-109-01G |
| | 17 | Filter B | 811RRC-110-01G |
| | 18 | Screw | A-BA2008-225002 |
| | 19 | Screw | A-BJ2006 |

# 8. PANEL FACILITIES

## 8.1 FRONT PANEL

### Front panel




**1 MULTI JOGdial**
Depending on the operation, you can use this to select an input source or listening mode, as well as for tuner and system settings. It can often be used instead of the remote control ▲/▼ (cursor up/down) buttons.

**2 Surround listening mode buttons**
Use to select the **MOVIE** and **MUSIC** surround listening modes.

**3 ⏻ STANDBY/ON**
Press ⏻ **STANDBY/ON** to switch the receiver on or into standby.

**4 OFF ON**
Switch the receiver on or into standby when this button is in the **ON** position. When in the **OFF** position, the power to the receiveris switched off.

**5 ENTER**
Use to confirm your selection (with the **MULTI JOG** dial).

**6 STANDBYindicator**
Lights when the receiver is in standby.

**7 Remote sensor**
Receives the signals from the remote control.

**8 Display**

**9 Advanced MCACCindicator**
Lights when Acoustic Calibration EQ is on (Acoustic Calibration EQ is automatically set to **ALL CH ADJUST** after the Auto Surround Setup has been completed).

**10 i.LINK indicator**
Lights when an i.LINK-audio-equipped component is selected.

**11 STEREO/DIRECT**
Switches the receiver into **STEREO** mode if it was in a different listening mode or toggles between **DIRECT** and **STEREO.**

**12 MULTI CH IN**
Press to select the component connected to the **MULTI CH IN** terminals (for example, a DVD-Audio player).

**13 ACOUSTIC EQ**
Press to select an acoustic calibration EQ setting.

**14 MASTER VOLUMEdial**
Adjusts the volume.

**15 MULTI JOGCONTROL**
Use the **SET UP** button to access the System Setup menu, and **RETURN** to exit the current menu screen.

**16 STREAM DIRECT**
Press to switch on/off Auto playback.

**17 CHARACTER/SEARCH**
Use this button to search for RDS program types.

*Multi-voltage model:*

**MIDNIGHT**
Press to switch on/off Midnight listening.

**18 EON MODE**
Use to search for programs that are broadcasting traffic or news information.

*Multi-voltage model:*

**LOUDNESS**
Press to switch Loudness on/off.

**19 TUNER controls**
Use the front panel tuner controls for tuning into stations and recalling station presets.

**BAND**
Press to select the AM or FM band.

**CLASS**
Press repeatedly to switch the preset station classes.

**SELECT**
Switches between the station memory and frequency select mode when using the **– /+** buttons.

**– /+**

Selects station memories or frequencies when using the tuner.

**TUNER EDIT**
Press to memorize and name a station for recall with the **MULTI JOG** dial.

**20 MULTI ROOM & SOURCE controls**
If you've made multi-room connections use these controls to control the sub room from the main room.

**CONTROL**
Use together with the **MULTI JOG** dial to select the function or use with the **MASTER VOLUME** to select the volume of the sub room.

**ON/OFF**
Use to switch the multi-room feature on or off.

**21 PHONES jack**
Use to connect headphones (no sound will be heard through the speakers).

**22 SPEAKERS**
Depending on the surround back speaker setting, press either to switch the speaker system or simply to switch it off.

**23 TONE CONTROL**

**TONE**
Press to switch the tone controls on or off (bypass).

**BASS/TREBLE**
Use to select whether the bass or treble will be adjusted.

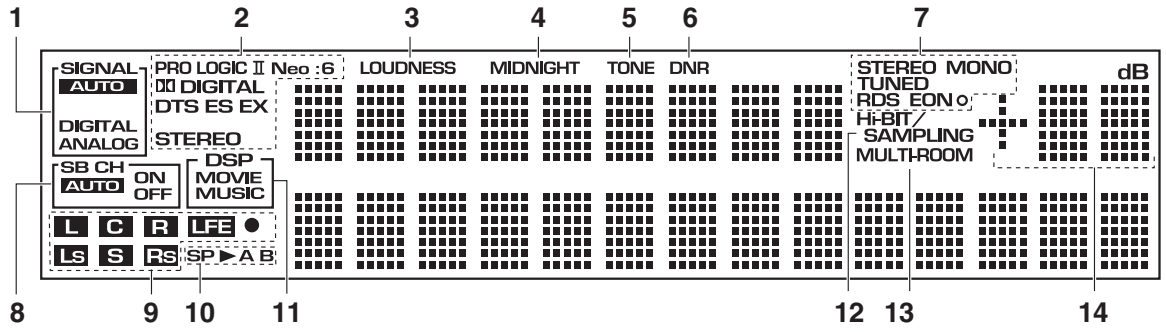
**+/–**
Use to adjust the frequency setting.

**24 MCACC SETUP MIC jack**
Use to connect the supplied microphone.

**25 VIDEO INPUT jacks**
- **DIGITAL IN** – Connect a game console, portable DVD player, video camera (etc.), that has an optical digital connection.
- **S-VIDEO** – Connect a video camera (etc.), that has an S-video out.
- **VIDEO / AUDIO (L/R)** – Connect a video camera, etc. that has standard RCA video/audio outputs.

# 8.2 DISPLAY

## Display




**1 SIGNAL indicators**
Light to indicate the currently selected input signal. **AUTO** lights when the receiver is set to select the input signal automatically.

**2 Digital format indicators**
- **PRO LOGIC II** – Lights during Dolby Pro Logic II and Pro Logic IIx processing.
- **Neo:6** – Lights during Neo:6 processing with 2-channel sources.
- **DIGITAL** – Lights when a Dolby Digital signal is detected.
- **DTS** – Lights when a DTS signal is detected.
- **ES** – Lights when a DTS-ES signal is detected.
- **EX** – Lights when a Dolby Digital EX signal is detected.
- **STEREO** – Lights during 2-channel playback.

**3 LOUDNESS**
Lights when Loudness listening is active.

**4 MIDNIGHT**
Lights when Midnight listening is active.

**5 TONE**
Lights when the tone control is switched on.

**6 DNR**
Lights when digital noise reduction is switched on.

**7 Tuner indicators**

**STEREO**
Lights when listening to a stereo FM broadcast in auto/stereo mode.

**MONO**
Lights when the tuner MPX mode is set to mono.

**TUNED**
Lights when tuned to a broadcast.

**RDS**
Lights when an RDS broadcast is received.

**EON ●**
**EON** lights when the EON mode is set, and flashes during reception of an EON broadcast. The ● indicator lights when the current station carries the EON service.

**8 SB CH**
Indicates the surround back channel (or Virtual Surround Back) setting (**AUTO**, **ON** or **OFF**).

**9 Program format indicators**
These change according to which channels are active in Dolby, DTS, DVD-A and SACD sources.

**LS**, **S** and **RS** will light at the same time to indicate 6.1 channel sources.
- **L** – Left front channel
- **C** – Center channel
- **R** – Right front channel
- **LS** – Left surround channel
- **S** – Surround channel (mono) or surround back channel
- **RS** – Right surround channel
- **LFE** – Low frequency effects channel
- ● – Lights when an LFE signal is detected

**10 Speaker indicators**
Lights to indicate the current speaker system, **A** and/or **B**.

**11 Listening mode indicators**
Shows **MOVIE** or **MUSIC** when a surround listening mode is selected. **DSP** will light with a box around it when one of the advanced (DSP) listening modes is selected.

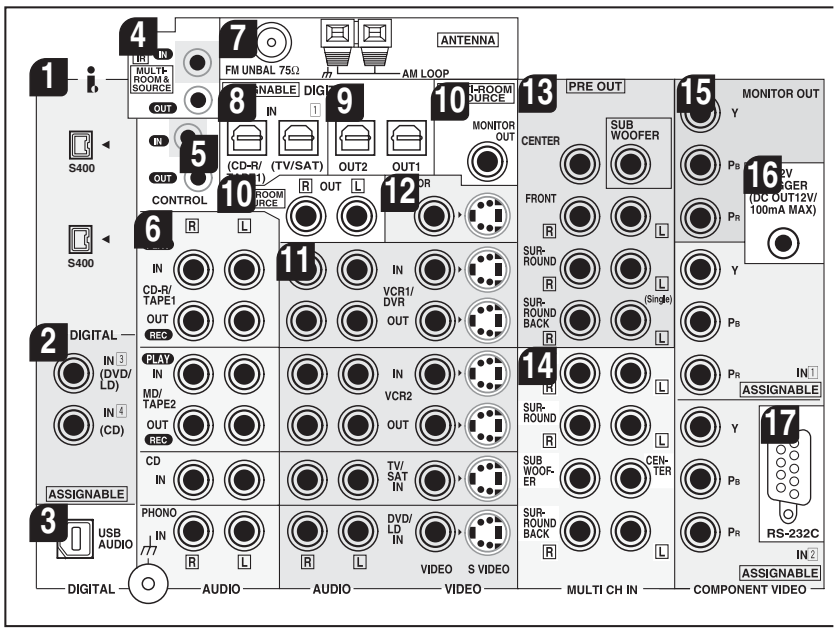
**12 Hi-BIT/SAMPLING**
Lights when the audio scaler is switched on.

**13 MULTI-ROOM**
Lights when the multi room feature is active.

**14 Volume level indicator**

# 8.3 REAR PANEL

## Rear panel




**1 i.LINK connectors**
Two S400-type i.LINK connectors allow you to connect this receiver to other compatible i.LINK audio devices for high-resolution, multichannel digital audio input/output.

**2 Digital audio coaxial inputs**
Two coaxial digital audio inputs for connecting digital audio sources to this receiver. All the inputs are freely assignable to input functions for maximum flexibility.

**3 USB audio input**
The USB audio input allows you to use your PC as a playback source for audio.

**4 IR input/output**
An IR connection allows you to connect an external remote control sensor, when your component system is in a closed cabinet or shelving unit, for example.

**5 Control input/output**
Mini-plug terminals for connection to other Pioneer components to enable you to control all your equipment from a single remote sensor.

**6 Stereo analog audio source inputs/outputs**
Four sets of analog audio jacks for connection to audio sources such as CD players, tape decks and turntables. The **CD-R/TAPE1** and **MD/TAPE2** functions also feature outputs for recording.

- The grounding (⏚) terminal is for use with turntables that require it.

**7 Antenna terminals**
Connections for AM and FM radio antennas.

**8 Digital audio optical inputs**
Two optical digital audio inputs for connecting digital audio sources to this receiver. All the inputs are freely assignable to input functions for maximum flexibility.

**9 Digital audio outputs**
Two optical digital audio outputs for connecting to a CD-R, MD or other digital recorder.

**10 Multi-room and source outputs**
The analog audio outputs are for connection to a second amplifier in a separate room. The **MULTI-ROOM & SOURCE** composite video output is for connection to a second monitor or TVin a separate room.

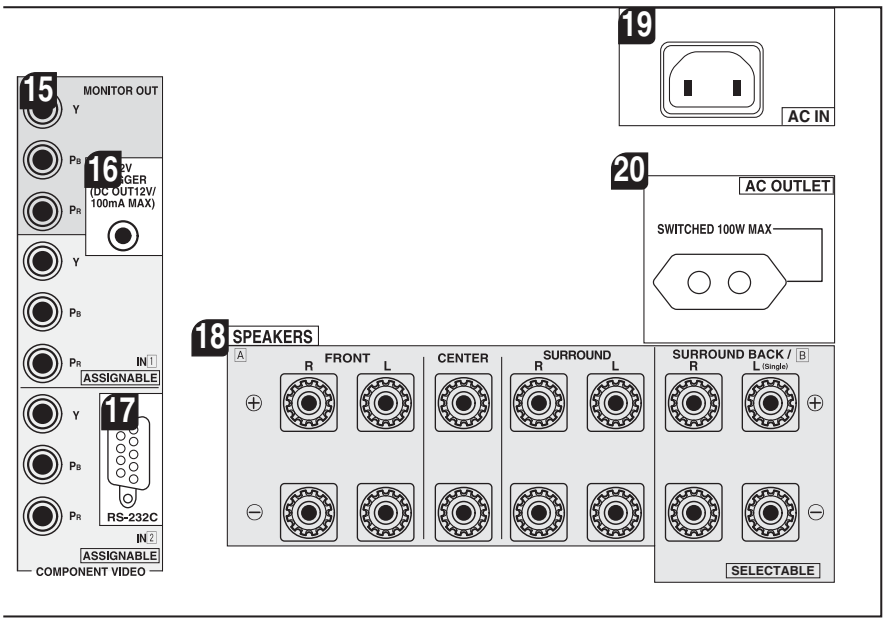
**11 Audio/video source inputs**
Each of the six source input functions has stereo analog audio jacks, a composite video jack and an S-video jack for basic connections. On top of these, you can assign digital audio and component video jacks to input functions as necessary. As well as audio/video inputs, the two input functions **VCR 1/DVR** and **VCR 2** also have audio/video outputs for recording.

**12 Monitor video outputs**
Two video outputs consisting of a standard composite video output and an S-video output, for connection to monitors and TVs.

**13 Multichannel pre-amplifier outputs**
Multichannel pre-amp outputs that you can use to connect separate amplifiers for center, surround, surround back and subwoofer channels.

**14 Multichannel analog audio inputs**
7.1 channel analog inputs for connection to a component with multichannel analog outputs.

**15 Component video inputs/output**
The two component video inputs are freely assignable to any of the audio/video input functions. The component video output is for connection to a monitor or TV.




**16 12V trigger jack**
This terminal outputs DC 12V according to the input functions (100 mA max.).

**17 RS-232C connector**
This port is provided for connecting a personal computer for graphical output when using Advanced MCACC.

**18 Speaker terminals**
These are the main speaker terminals for front, center, surround and surround back speakers.

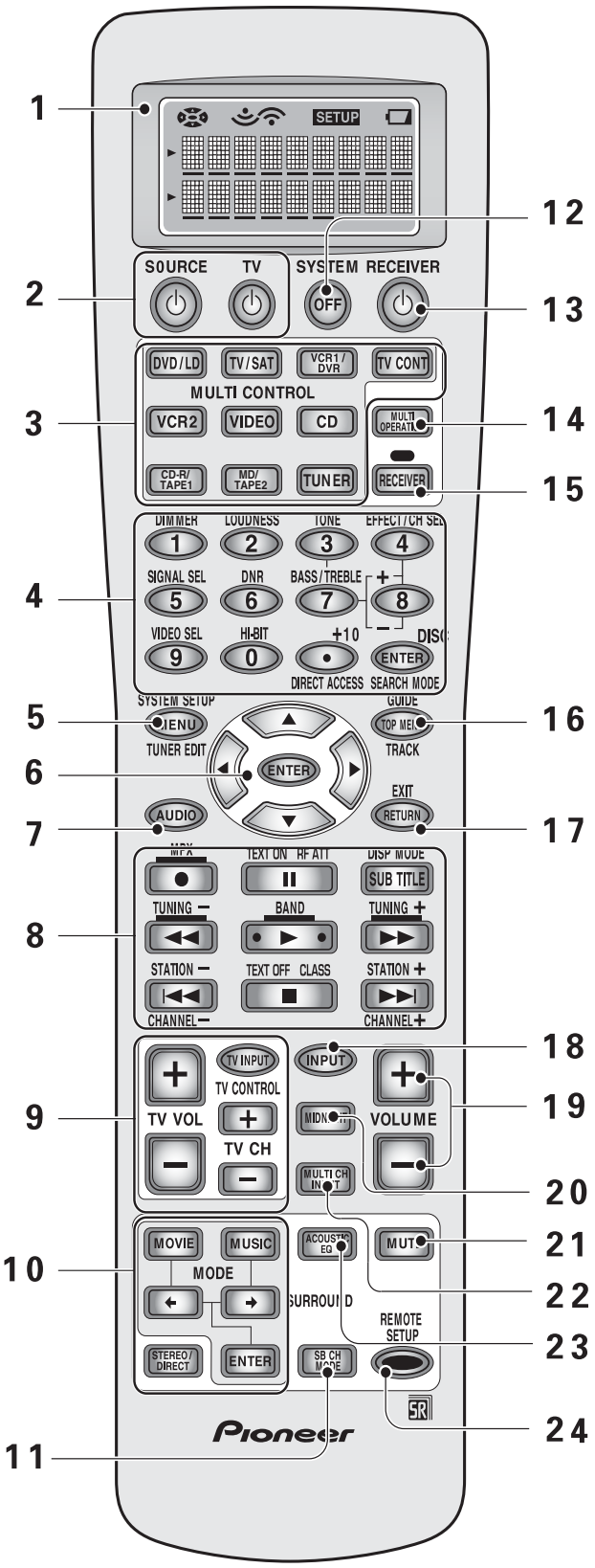
**19 AC power inlet**
Connect the supplied power cord here.

**20 AC power outlet** *(Switched 100W max.)*
This 230V AC power outlet can be used to power another component in your setup (up to 100 W). Power to this outlet is switched off when the receiver is in standby.

# 8.4 REMOTE CONTROL UNIT

This page describes the buttons on the remote control used to operate the receiver.

AXD7364




**1 Remote Control Display Screen**

**2 SOURCE ⏻ button**

Use this button to turn on/off other components. You must input the preset code in order to use this function.

**TV ⏻ button**

This is a dedicated TV button. Use it to turn on/off your TV.

**3 MULTI CONTROL buttons**

These buttons are the basic controls that switch the mode of the receiver and the remote control, which allows you to control your other components.

**TV CONT:** Press so that the remote control can operate the TV control commands.

**4 Number buttons**

These can be used for many purposes depending on the mode of the remote control.

When in receiver mode the buttons operate as below:

**DIMMER button**

Use to adjust the brightness of the receiver's display.

**LOUDNESS button**

Switches the LOUDNESS mode on or off.

**TONE button**

This button switches between TONE on and off, which bypasses the tone circuitry.

**BASS/TREBLE buttons**

Use to select whether the bass or treble will be adjusted.

**(+/–) buttons**

Use to adjust the TONE level, effect level, channel level and sound delay as well as make Dolby Pro Logic II MUSIC parameter settings.

**EFFECT/CH SEL button**

Switches between the different channels so you can add volume individually to each channel with the + and – buttons. Also selects EFFECT mode, Dolby Pro Logic II MUSIC parameters and sound delay settings.
You can then use the + and ñ buttons to make these adjustments.

**SIGNAL SEL button**

Press repeatedly to select one of the following:

**AUTO –** If there are analog and digital signals input, the receiver automatically selects the digital signal.

**DIGITAL –** To select an optical or coaxial digital signal.

**ANALOG –** To select an analog signal.

**DNR (DIGITAL NR) button**
Switches the DIGITAL NR on or off.

**VIDEO SEL button**
Use to toggle between the different video input possibilities.

**HI-BIT button**
Use this button to switch the AUDIO SCALER on or off.

**5 SYSTEM SETUP button**
Use for all system setups, including the speaker and sound systems. For more information see "Setting Up for Surround Sound".
For a DVD player use this button to bring up the DVD menu and for a tuner use this button in the same way as the TUNER EDIT button.

**6 ▲/▼/◄/►/ENTER buttons**
These buttons can be used for a variety of operations in the SYSTEM SETUP menu.
These buttons are used to control the menus for other components when in those modes (DVD, digital TV tuner, satellite tuner, cable tuner, etc.). In TUNER mode, they can select a station and/or a frequency.

**7 AUDIO button**
Use to switch the audio tracks of a DVD when in DVD mode.

**8 Command button for other components**
Use these buttons to control other components you selected with the MULTI CONTROL buttons. You must input the preset code in order use this function.

**9 TV CONTROL buttons**
The following buttons are used to control the TV only and can be used once they are preset to control your TV.
**TV INPUT:** Press to select the input source for the TV.
**TV CH +/– :** Use these buttons to change the channel of the TV.
**TV VOL +/– :** Press to control the volume of the TV.

**10 Listening mode buttons**
**SURROUND buttons (MOVIE, MUSIC, ⬅➡ & ENTER):**
**MOVIE:** Press to put the receiver into MOVIE listening mode.
**MUSIC:** Press to put the receiver into MUSIC listening mode.
**⬅➡:** Use to select the MOVIE or MUSIC listening mode.
**ENTER:** Use this button to enter information concerning the listening modes.
**STEREO/DIRECT:** Switches the receiver into STEREO mode if it was in a different sound mode or toggles between DIRECT and STEREO mode.

**11 SB CH MODE button**
Use this button to turn the surround back channels ON/OFF/AUTO or switch the virtual surround back mode between ON/OFF/AUTO.

**12 SYSTEM OFF button**
This button turns off components in two ways. First, when pressed it will turn off all PIONEER components. Secondly, any component that has programmed into the SYSTEM OFF settings will be turned off.

**13 ⏻ RECEIVER (STANDBY/ON) button**
Press to turn power of the receiver on or to standby (off).

**14 MULTI OPERATION button**
Use this button to start the multi operation mode.

**15 RECEIVER button**
Use this button to switch the remote control into receiver mode in order to get certain receiver functions or do receiver setups.

**16 TOP MENU/GUIDE button**
Use to find stations or menus on a digital TV tuner. For a DVD player use this button to bring up the DVD menu.

**17 RETURN button**
When you are in a receiver setup operation this button will go back one step in the SYSTEM SETUP procedure. When you are using your DVD menu screen this button acts the same as the DVD player's "Return" button. When you are using cable tuners, satellite tuners or digital TV tuners this button will either exit you from the menu screen or act like a "Return" button above, depending on the maker of the unit.

**18 INPUT button**
Press to select an input source. The button will cycle through all the possible sources including USB, PHONO and i.LINK components.

**19 VOLUME (+/–) buttons**
Use to raise or lower the volume of the receiver.

**20 MIDNIGHT button**
Switches the MIDNIGHT listening mode on or off.

**21 MUTE button**
Press to mute or restore the volume.

**22 MULTI CH INPUT button**
Use this button to select the component you have hooked up to the MULTI CH IN terminals (for example, a DVD-Audio player).

**23 ACOUSTIC CAL button**
Press to switch on/off and select the type of acoustic calibration EQ.

**24 REMOTE SETUP button**
Use to customize the remote control functions and the remote control itself.